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WHAT TEETH SHOULD BE EXTRACTED?*

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This subject will be considered only in relation to chronic mouth infections. Ten years have elapsed since attention was prominently called to infections about the teeth as a menace to health. The clinical observations by Hunter [1] of England and the combined clinical and laboratory studies of Billings [2] and his associates in Chicago served to attract the widespread attention of both physicians and dentists. Scattered through the literature for more than a hundred years are many articles associating mouth infections with systemic disease. Benjamin Rush, in his book on the practice of medicine, published in 1818, devotes several pages to the citation of cases in which rheumatic and other ailments were relieved by the extraction of teeth. Others have made similar reports, but at no time until the past decade has a definite movement been established to eliminate this source of systemic disease.

A review of the experiences of many of our most careful clinical observers leads to the conclusion that the chronic infections about the teeth must be counted an important factor in the general consideration of focal infections as a cause of certain types of systemic disease; also that the main contentions of the relationship between chronic foci anywhere in the body and the secondary effects are well established. Possibly the best recent review of the whole subject was that by Billings,[3] in which the histories of several hundred cases were carefully analyzed.

The chronic infections about the teeth present a problem in local pathology entirely different from the problem in any other body focus, because of the peculiar structure of one of the tooth tissues—the cementum—which constitutes the outer surface of the root, and furnishes attachment for those connective tissue fibers which hold the tooth in its socket. The cementum is closely analogous to subperiosteal bone. It is laid down by the cementoblasts of the peridental membrane.

The most important difference between cementum and bone is the lack of a circulation of blood in cementum. Cementum is a passive tissue, dependent on the peridental membrane for its vitality. It therefore dies when denuded of its peridental membrane, as does subperiosteal bone when stripped of its periosteum. The dead area of cementum cannot be separated and exfoliated, as is dead bone; therefore the dead area of cementum remains and acts as a continuous irritant to the adjacent tissue. Thus the peculiar structure and physiologic relationships of the cementum are responsible for maintaining the chronicity of the infections about the teeth.

The cementum is a very porous tissue, and naturally absorbs the products of the suppurative processes with which its surface is bathed. It should not be expected, therefore, that a reattachment of tissue to dead cementum will occur. Rules of procedure other than those applied to infective foci elsewhere must be followed.

Apparently because of the lack of understanding of the peculiar pathologic condition in these cases, opinions as to treatment differ widely. One group of extremists is extracting every tooth from which the pulp has been removed, even though there is no indication that such teeth are a menace to health; another group refuses to extract any tooth that is serviceable for mastication, regardless of the evidence of infection about it. Almost innumerable cases representing both extremes have come to my attention. In cases in which it had been recommended that from twenty to twenty-six teeth should be extracted on suspicion that they might be the cause of a rheumatoid condition, critical examination revealed no definite indication for the extraction of a single tooth. In other cases in which patients were seriously ill for months, dentists advised that no teeth be extracted, when roentgenograms disclosed large abscesses in the jaw bones, and when there was ample clinical evidence of these infections without the roentgenograms. Both types of extremists do much harm without assisting in the solving of the problem.

Statistics [4] show that there probably is about the same incidence of chronic mouth infections among adults who are well as among those who suffer from the systemic diseases occurring secondarily to local foci. In about 78 per cent. of adults who are in ordinarily good health, and who are attending to their regular duties, roentgenograms reveal that some portion of the maxilla or mandible is destroyed by chronic infections. The fact that the percentage may be as high for well persons as for those who are sick does not justify the conclusion that mouth infections do not cause systemic disease. It is evidence of the good resistance of the large majority to these low grade infections. We must recognize the menace of each infection to its host, and realize that the time is

* Read before the Section on Stomatology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

1. Hunter: Rôle of Sepsis and Antisepsis in Medicine, Lancet, Jan. 14, 1911.
2. Billings: Chronic Focal Infections and Their Etiologic Relations to Arthritis and Nephritis, Arch. Int. Med. 9: 484 (April) 1912.
3. Billings, Frank; Coleman, G. H., and Hibbs, W. G.: Chronic Infectious Arthritis, J. A. M. A. 78: 1097 (April 15) 1922.
4. Black, A. D.: Roentgenographic and Microscopic Studies of Tissues Involved in Chronic Mouth Infections, J. A. M. A. 69: 599 (Aug. 25) 1917; 71: 1279 (Oct. 19) 1918.

likely to come, sooner or later, when changes in the person's resistance or in the virulence of the infection will lead to the establishment of disease elsewhere. It must be kept in mind, so far as the chronic mouth infections are concerned, that there is no prospect of a reunion of the soft tissue with the tooth root and no hope for a healing of the focus such as might occur in many other locations. Therefore, the only safe rule of practice is to eradicate mouth foci.

DESTRUCTION OF PERICEMENTAL TISSUE

In deciding whether a given tooth should be extracted, it would seem most logical to determine first to what extent the pericemental tissue has been destroyed, noting whether there is denuded, dead cementum, which maintains a chronic irritation of adjacent conective tissue. In making such a diagnosis, two distinct conditions should be considered: the pyorrhea pocket and the chronic alveolar abscess.

In the case of the pyorrhea pocket, the detachment always begins at the gingival line of the tooth, so that the extent of the detachment may be easily determined with a thin-bladed exploring instrument. Digital examination will reveal the absence of overlying bone; pus may be expressed. The tooth may be loose; there may be a history of intermittent periods of soreness, of tenderness to pressure; the tooth may have moved slightly from its normal position in a direction away from the pocket. A roentgenogram will reveal the absence of more or less bone of the alveolar process, corresponding to the area of detachment, provided the depth of the pocket is below the line of the normal crest of the alveolar process. The age of the patient, the history of the previous losses of teeth, the nature of local irritations and the general physical condition should all be considered.

In determining whether to extract these teeth, two things should have most important consideration: first, the possibility of eliminating the systemic menace by preventing reinfections; second, the usefulness of the teeth in mastication. The depth of pockets and the tightness or looseness of the teeth during periods when there is no acute infection in the pockets are most frequently the deciding factors. The connective tissue lining the pocket must have the protection of an epithelial covering if the tooth is to remain.

For shallow pockets, the growth of the epithelium may be promoted by removing irritation and by the highest degree of cleanliness. For deeper pockets, the overlying tissue may be cut away. The cut surface will be promptly covered with epithelium, and even though the pocket is partially reestablished by the regrowth of the gum tissue, the newly formed tissue will be lined with epithelium, and will be comparatively safe from reinfection. If the pockets are deeper and the teeth are loose, the best plan is to extract the teeth, because it is practically impossible to retain such teeth without frequent reinfection of the pockets.

ALVEOLAR ABSCESS

In the case of teeth having chronic alveolar abscess, the detachment of the soft tissue from the cementum is always about the apex of the root. Usually a portion of the bone is destroyed, and the extent of the injury may be determined by roentgenographic examination. If the roentgenogram discloses a cavity in the bone, with the end of the root projecting into the cavity, there can be little question that the cementum of the root end is denuded, provided the cavity is one involving a single root and the pulp of the tooth is not vital. If the roentgenogram reveals a continuous line of dense bone to which the fibers of the peridental membrane are attached, all the way round the root end and parallel to the surface, the evidence is quite positive that the attachment of the soft tissue to the cementum is intact.

In cases in which upper molar roots are projected into the shadow of the maxillary sinus, the showing of this line of denser bone is often the most important item in the diagnosis. If there is a sinus through the gum, a sharp steel probe should be used to determine the condition of the tissues at the apex of the root. This method is often more certain than the roentgenogram.

By digital examination, one may discover whether a cavity in the bone has involved the buccal (or labial) or lingual plate, and a movement of the end of the root may be felt. If the bone has been destroyed, a sharp steel probe may be passed through the soft tissues to explore the root end. In the absence of other symptoms, tenderness of the tooth to the stress of mastication or to percussion, intermittent soreness or slight elongation of the tooth, all indicate inflammation of the apical tissues.

In all cases in which the diagnosis is not clear, the vitality of the pulp of the tooth should be tested; in fact, this test should be made as a routine check on roentgenograhpic evidence. When it is determined that an area of cementum about the apex has been denuded by the destruction of the peridental tissues, the tooth should, as a rule, be extracted. In determining whether the tooth should be extracted, the size of a cavity in the bone is of much less importance than the extent to which the cementum is denuded.

In connection with the study of these cases, it should be kept in mind that an acute alveolar abscess generally does not destroy the peridental membrane about the apex of the root. The infection follows the lymphatic vessels attached to the walls of the blood vessels which pass through the foramen of the root. These lymphatic vessels pass directly out into the cancellous bone, which, therefore, is involved in acute alveolar abscess. It follows, then, in cases in which acute abscesses receive prompt treatment, that no serious harm is done, and there is no reason why the teeth should be extracted.

Likewise, in cases of dead pulps, with or without acute abscess, the teeth should not be extracted unless it can be determined that the immediate periapical structures have been destroyed. In connection with a paper [5] read before the Illinois State Dental Society in 1920, I exhibited roentgenograms of teeth in which dead pulps had been removed and root fillings made from one to thirty-two years previous to making the roentgenograms. Of the cases which showed no sign of injury to the peridental tissues at the time the dead pulps were removed, 94 per cent. appeared to be in perfect condition when the recent roentgenographic examination was made, and all other signs and symptoms corroborated the roentgenographic findings. This exhibit alone should be sufficient to condemn the extraction of all teeth from which pulps have been removed, as has been the practice in a considerable number of hospitals, and by many dentists. Too many such teeth have been removed "on suspicion" without any real evidence against them.

5. Black, A. D.: Clinical Studies of Pulp Treatments, Including Report of Fifty-One Cases in Which Dead Pulps Were Removed, J. Nat. Dental A. 8:132, 1921.

CURETTEMENT OF SOCKETS

Gilmer[6] has criticized the common practice of curetting sockets after the extraction of abscessed teeth. Extensive studies of roentgenograms of edentulous or partially edentulous jaws, from which abscessed teeth had been removed months or years previously, have shown that it was the almost universal rule that infected areas had been entirely replaced with healthy bone. Therefore, curettement is not only unnecessary, but is definitely contraindicated, because it opens the cancellous bone, giving opportunity for the infection to spread. Curettement also calls for much after-treatment which would otherwise be unnecessary.

TWO RADICAL GROUPS

Notwithstanding the extensive studies and discussions of recent years, it appears that too large a number of physicians and dentists are still in one or the other of the two radical groups; the one extracting every remotely suspicious tooth without real evidence, the other refusing to remove teeth which are undoubtedly abscessed. Those of the first group are seriously handicapping the masticating power of those who particularly need to chew their food thoroughly because they are below par physically. Too often teeth have been sacrificed on suspicion when supposedly all other sources of infection have been eliminated. Those of the second group are permitting the development of secondary pathologic processes which will shorten the lives of many patients. It should be a rule that no tooth will be removed unless there is a definite indication for the operation; it must also be a rule that all teeth having infected areas about them should be extracted if the infection cannot be otherwise eliminated. The determination whether or not to extract the tooth will nearly always require a demonstration that the cementum of the root has been denuded.

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ABSTRACT OF DISCUSSION

DR. R. H. IVY, Philadelphia: In persons otherwise in good health, many chronic periapical infections can be cured without extraction of the teeth. I was surprised at the statements of Dr. Black and Dr. Logan that they found a very small percentage of residual alveolar infections in jaws examined sometime after extraction of teeth without curettement. On the other hand, I see a large number of cases of residual bone disease due to failure to recognize and treat appropriately the alveolar condition at the time of extraction. I believe that judicious curettement is indicated under certain conditions, as the drainage produced by extraction will not necessarily result in cure. This curetting should depend on the amount and type of disease present, and is particularly applicable to cystic degeneration.

DR. J. H. KENNERLY, St. Louis: I never could agree to the extraction of every tooth in which there was a pathologic condition of any kind. I was raised among a class of men who knew nothing about roentgen rays, but they did know how to treat and save teeth. I never could feel that those men were not employing good dentistry in their method of treating pulpless teeth. I think that our great fad for extraction has had its day, and I am glad to see that the pendulum is beginning to swing in the other direction because I am absolutely sure that in the last ten years millions of good teeth were extracted uselessly.

DR. WILLIAM L. SHEARER, Omaha: If I have understood Dr. Black, the cases he represented and the cases he referred to were not selected from a class of patients presenting some systemic manifestations of the body as a whole. If this is correct, I would heartily endorse the management of that tooth; but I believe that in the face of pathologic processes of the body which are in part, or wholely, traceable to chronic mouth infections, the general physical condition of the patient should be a guiding factor. We can no more dissociate pathologic conditions of the mouth in relation to disease than we can dissociate infections of the tonsils, liver, gallbladder or other organs in relation to general bodily metabolism. One condition of the bone at the root ends of the teeth which I wish Dr. Black had brought out is the diffuse osteitis or a diffuse inflammation of the body of the bone at the root ends of pulpless teeth. In many cases of root end infection, an osteosclerosis has taken care of the organisms contained in that area. The recent investigations of Dr. Rickert and his associates at Ann Arbor have many times demonstrated this fact. On the other hand, with a diffuse osteitis at the root ends of pulpless teeth, they have not been able in any cases to treat the teeth so as to obtain a sterile culture and keep it sterile. But, in the other type with an osteosclerosis (in which the infection is well walled off), in vast numbers of cases they have been able to obtain a sterile field and keep it sterile eighteen months. In the treatment of chronic infected areas at the root ends they have been able up to date to obtain a sterile field only in single rooted teeth. I believe (as they have brought out in their investigations) that, when a patient presents some systemic manifestation of the body which might be, in part, traceable to infection of the mouth, we should not permit the teeth to remain in the mouth unless we can obtain a sterile culture and keep it sterile. I firmly believe and always shall (until it is demonstrated to me otherwise) that vast numbers of teeth may be maintained in the mouth without menace to health. At the same time, it is our duty to call the attention of those patients carrying infected teeth to the fact that once they start with a cerain syndrome, such as headache, backache, dissatisfaction with their general physical fitness, inability to carry on their work satisfactorily and fatigue after a few hours' exertion, they should consult their dentist and determine whether or not the teeth are a contributing factor to their ill health. I advise that cultures be taken under the most rigid aseptic conditions. When this can be done, then, and then only, are we wise in maintaining such teeth in the mouth.

DR. S. D. RUGGLES, Portsmouth, Ohio: For a dentist without a knowledge of medicine to condemn pulpless teeth in cases of focal infection is presumptuous. For instance, unless a general physical examination, urinalysis and blood count are made, the first requisites for a diagnosis are missing. The resistance of the patient should be known in order to judge of the course to be pursued. A patient with high resistance is cared for differently from one whose life is in jeopardy. I am inclined to the belief that the dentist single handed is not a good man to decide definitely whether or not the teeth should be removed.

DR. FULTON RISDON, Toronto: In this work, first we must see what is removed; second, we must be able to hold that in the hand; third, we must see into the cavity and see that our work is done. I have seen very disastrous results from simply curetting.

DR. T. L. GILMER, Chicago: I heartily concur with Dr. Black's paper throughout. We should always keep in mind the fact that while the teeth are often the cause of disease, many other parts of the body may be diseased, and the teeth may be the primary focus of infection. We know that apical tooth infections are at times secondary to infection in other parts of the body. For instance, the pulp dies in a tooth without a cavity of decay. Disintegration takes place in the pulp tissue, and as a result poisons are formed. These poisons pass out through the apex of the root of the tooth and lower the vitality of the apical tissues, but they do not cause an abscess to form. Pyogenic organisms reach these localities through the nutritive channels from a focus elsewhere in the body, and, the vitality of the apical tissue having been lowered, succumb to the pus forming germs, and an abscess results. Here is a definite secondary infection of a tooth's root from a primary focus elsewhere. The pyogenic organisms could not possibly have reached the

6. Gilmer, T. L.: Fifty Years' Observation of Oral Surgery, J. Nat. Dental A. 9:547, 1922.

apex of the root through the pulp canal, since there was no cavity of decay. If a patient is ill as a result of foci of infection, and the patient's physical condition is improved by eliminating a jaw infection, the improvement may be due to the lessening of his load, but a complete cure must not be expected until the primary focus is discovered and also removed. The lack of this, in some instances, accounts for the failure of complete cures following the elimination of the jaw abscesses only.

DR. THEODOR BLUM, New York: I wish to call attention to the term abscess employed in connection with an area of bone destruction at the apexes of teeth. In most of these areas, no pus is found and as long as we consider an abscess a circumscribed collection of pus, we have no right to use this term in this connection. I am surprised to hear so many speak against curettement. Of course, we do not curet the sockets, but the areas of absorption around the apexes of the teeth. Knowing that radicular cysts develop from the thickened apical pericementum, curettage of such areas must be advocated. I was especially interested in one case cited by Dr. Black, in which there were two maxillary bicuspids, only one of which was devitalized, while a cystic area involved both apexes. This is a frequent occurrence and seems to be due to the slow growth of cysts, during which time nerves and blood vessels are slowly enlarged and elongated, but not destroyed. We are on the right track in being conservative and in removing so-called devitalized teeth only when it is absolutely necessary. Roentgenograms are often misleading. Generally, conditions are worse than represented. I have examined several thousand roentgenograms made from edentulous and partially edentulous jaws. I found few abscesses remaining, and those found were probably encapsuled abscesses or small cysts. Since so few abscesses remain after the extraction of teeth when there is no curettement of the sockets, I am of the opinion that it is uncalled for, except in extremely large infected areas. It is doubtful whether the term granuloma as employed in connection with chronically abscessed teeth is ever justified. The name indicates a tumor made up of granulation tissue. Granulation tissue in an apical abscess is not a tumor. It is due to an effort of Nature to rebuild the bone destroyed by infection; but it cannot become mature tissue, since the root infection does not permit. When the infected root is removed, the granulation tissue becomes mature tissue and the bone lost by infection is replaced. If this is true, why should this granulation tissue built up by Nature to replace bone be removed? The term nonvital teeth is misleading. If a tooth is nonvital, it is a necrosed tooth and would not be tolerated by Nature. Pulpless teeth are not dead teeth.

DR. T. W. BROPHY, Chicago: I regret that we could not have started a campaign in the direction taken by Dr. Black ten or twelve years ago. If we had, thousands of good teeth would still be in the mouths of their owners and doing good service. Still, we are doing all we can at this time to prevent the further unnecessary loss of good teeth. All of us who have looked into this question, even casually, know that teeth have been extracted unnecessarily. Teeth have been called dead when not dead. They have vital relation with the tissues surrounding them. A dead tooth is necrotic. Abscesses have been said to exist when none existed. Roentgenograms have been misinterpreted, and many persons have been advised to have teeth extracted on the assumption that these teeth were diseased, when they were not. Our greatest, most important duty is to conserve health. The preservation of the human teeth will contribute largely to the preservation of health and to increasing the longevity of mankind.

DR. VIRGIL LOEB, St. Louis: I want to emphasize particularly one point which Dr. Black made relative to curettement. I believe, as he does, that there is entirely too much curettement of tooth sockets. I know he did not intend to give the impression of objecting to curettement of large cystic areas; but what he did mean, I think, is to object to the promiscuous and almost criminal curettement after the removal of teeth, about the apexes of which there may be only small rarefied areas. In many cases in which there are no general symptoms before curettement, such symptoms appear after curettement.

DR. CARL W. WALDRON, Minneapolis: There are too many experimental difficulties in the way of surely and finally deciding the conditions surrounding these pulpless teeth. I feel that, on account of the widespread and lamentable extraction of teeth, we need men like Dr. Black to tell us to hold back. I agree with what Dr. Shearer said about the sick and the well. Any dentist can ascertain in a general way the state of a person's health and determine his line of treatment. When the physician in charge of the patient has done his utmost, yet has been unable to determine other sources of infection, the dentist should remove the pulpless tooth. I am certain it would be far better to remove every pulpless tooth than again to have the conditions which we all know too well were present five years ago with reference to the practice of dentistry. There is a better way; that is prevention. Rather than undertake a large mass of research work to settle the matter of the pulpless tooth, we might far better spend our energy and time in research that will lead to its prevention. With reference to indiscriminate curettage, I think we need not worry when the dentist who extracts an infected tooth will so govern his technic that he can see the areas involved.

DR. ARTHUR D. BLACK, Chicago: Many men have made it a rule to curet areas following extraction. There are cases which require curetting, but it should not be a rule of practice. Some men are recommending that the buccal plate and much healthy bone be cut away to gain access to a small area at the bottom of a socket. This not only exposes an area of freshly cut bone to the infection, a procedure which may be a serious menace to the patient's health; it also later handicaps the patient in wearing a denture, and besides, in a large majority of cases there will be perfect healing if nothing is done but removing the tooth. I appreciate the importance of taking into consideration the physical condition of the patient in deciding whether or not we shall extract a tooth about which we may be in doubt, especially in cases in which the most thorough study of other areas of the body has been made and apparently nothing was found. In such cases, we may be justified in extracting a tooth "on suspicion." But our rule should be to have a definite indication for each extraction we perform. On the other hand, we must not let the pendulum swing back too far; we must not leave abscessed teeth in the mouths of patients who are well, because these teeth are a constant menace to health, and also because the secondary manifestation is so often of a serious nature and beyond hope of cure when discovered by the physician. We must have a rule of practice in these cases by which we shall eliminate every discoverable area of chronic infection, and we must study the condition of the cementum more than that of any one tissue because pus-soaked cementum is the irritant which maintains these chronic infections. It is just as much our duty to eliminate these infections in a well person as it is to eliminate them in the sick.

Mortality Among Granite-Stone Workers.—Compared with the normal death rate of adult males of Vermont, or of New England, the mortality from pulmonary tuberculosis among granite-stone workers has increased enormously during the last two years, as contrasted with a diminishing in the population at large. Against a decrease in the pulmonary tuberculosis death rate of adult males of Massachusetts from 288.5 per hundred thousand exposed to risk during 1895-1899 to 203.2 during 1915-1918, there had been an increase in the corresponding death rate of granite cutters of the New England states from 432 per hundred thousand during 1895-1899 to 1056.7 during 1915-1918. The only other occupation for which information is available for the corresponding period is that of glass-bottle blowers, among whom the mortality from pulmonary tuberculosis diminished from 418.6 per hundred thousand to 265.9.—Hoffman: The Problem of Dust Phthisis in the Granite-Stone Industry, U. S. Department of Labor, 1922.

MALOCCLUSION AND ITS FAR-REACHING EFFECTS *

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When we consider from the standpoint of beauty and comfort the great blessing of a healthy oral cavity, we cannot but wonder why the medical profession has only at this late date come to stress its importance. It is in this area more than anywhere else in the human body that prevention—the ideal of the physician—can be exercised. It has already been pointed out [1] that caries, the most frequent disorder of the oral cavity, can be at least greatly minimized by both prenatal and postnatal influences; prenatally not only by giving particular attention to the diet of the mother for the formation of teeth of her unborn child, but also by preventing any disturbance in the mother's metabolism that might interefere with the assimilation of food. Postnatally, the physician should advise for the child a diet which provides for continuation of adequate tooth formation, and which also aids in the development of proper functioning of the jaws so as to lessen the probability of the occurrence of malocclusion.

Malocclusion is one oral disorder that has not received the attention it deserves. It is a great handicap to the child physically and mentally. This is evident when the physician notes the frequency with which a diagnosis of mental retardation and physical impairment accompanies the diagnosis of malocclusion. Normal occlusion goes hand in hand with well formed jaws, sound teeth, proper mastication, correct breathing, normal speech, normal brain development and the well-being of the child.

The oral cavity of the new-born is very shallow, owing to the imperfect development of the alveolar process. The hard palate is flat. The teeth are formed first, and the bone develops around them for their support. A tooth grows by the multiplication of cells of the tooth germs, and the growth is comparable to the forces exerted on it by multiplication of cells as in any other part of the body. The peculiar forces of the muscles of the face and the surrounding bone determine the extent of development. The lips, tongue, palate and other tissues exert pressure on the lingual surfaces of the bone, through the periostium, which in turn stimulates its growth. This mechanical stimulus is necessary in addition to nutrition for growth.

Animal experiments and clinical evidence show that the muscular function acting through occlusion affects the development not only of the jaw but also of the entire skull. Any lack of harmony in the working of these muscular forces causes the teeth to occlude abnormally after their eruption. Every pathologic occlusion has a simple beginning in its deviation from the normal either in structure or in function. Once this balance or harmonious relation in the forces acting on the oral tissue is altered, there is a resulting disturbance in the development of the jaw. This improper development progresses because the same forces that act in keeping the teeth in their normal relation act equally in increasing any disproportion that exists.

If the child has proper oral care up to the age of 6, the chances are that oral disorders in after life will be avoided or at least greatly decreased. Assuming that the child has inherited a normal oral cavity, the most effective means of preventing oral deformities are to (1) provide proper nutrition; (2) provide sufficient and proper exercise of the jaw; (3) avoid faulty oral habits, and (4) remove causes of mouth breathing.

MOUTH BREATHING

The physical defects often seen accompanying mouth breathing of long duration include poorly developed alae nasi with small nose and short upper lip, upper arch narrow and lengthened, deflected septum, and sometimes impaired hearing. The child's appetite is usually poor, and there is a great desire for fluids, to take away the constant dryness of the mouth and throat. A history of anorexia and unsatisfied thirst is given by the mother as a consequence.

The amount of discomfort and deformity that may result from mouth breathing is difficult to estimate. Those who have a long, narrow face, with a shortened mandible, are apparently the worst sufferers. A normal face, on the other hand, seems to show evidences of comparatively little discomfort.

One of the commonest causes of persistent mouth breathing, especially in infancy, is adenoids. The cause of adenoids is often hard to explain, but their removal is comparatively simple. This course is urgently advised, as soon as the diagnosis is established. Early age is no barrier to their removal. When adenoids are responsible for mouth breathing, their removal is usually sufficient to restore nasal breathing; but nasal breathing does not usually follow after the removal of the adenoids in early childhood unless proper instruction of muscle training is given and carried out.

About 75 per cent. of the children seen at the Forsyth Dental Infirmary are still mouth breathers from one month to three years after the removal of their tonsils and adenoids. In a small percentage of these children, the condition may be traced to some further existing mechanical obstruction; in others, mouth breathing exists either because of habit formation or because of improper development of the facial muscles. By repeatedly reminding these children to breathe with their mouths closed, and by the constant practice of simple special exercises which tend to develop the facial muscles (as recommended by Dr. Alfred P. Rogers of Boston), a great many of them can be taught to breathe properly.

Nasal breathing is vital for correct oral development, and is one of the surest preventions of irregularity of temporary teeth. Fortunately, not all mouth breathers develop material deformities of the dental arches, maxilla or mandible.

FAULTY HABITS

Faulty habits may play some major or minor part in the causation of oral deformities. These habits should be prevented if possible; if formed, they should be discontinued. A practice to be especially condemned is the prolongation of feeding through the artificial nipple. Bottle feeding does not furnish the proper development of the muscles of the jaw. It retards the child in learning to masticate properly. The muscles of mastication should be put into function as early as possible, and there is no valid excuse for allowing the child to continue bottle feeding when it has sufficient strength to be fed with a spoon.

It is hardly necessary to comment on the fact that the breast-fed baby is better nourished than the baby who is artificially fed. From the point of view of normal oral development, the breast-fed baby, by the

* From the Forsyth Dental Infirmary for Children.
1. Cohen, S. A.: Oral Disorders in Pediatrics, Am. J. Dis. Child. 24: 160 (Aug.) 1922.

very act of nursing, has the additional advantage of developing its mouth and jaw to a higher degree of perfection than the baby who obtains its nourishment through an artificial nipple. The breast-fed baby, by his act of vigorous sucking with a great deal of force, causes the tongue to act as a wedge to the back part of the mouth, which in turn causes a widening of the nasal passages. The child nursing from a bottle does not go through the same performance of developing its jaw muscles; the milk flows readily, and the soft rubber nipple does not offer the same kind of resistance as does the human nipple. A nipple of proper size is important if the baby nurses from a bottle. An ideal nipple is one that is long and large enough so that the baby can draw the fluid from the bottle only by working the jaw up and down; and pressing the nipple between the tongue and palate, and bringing into play the muscles of the palate. It is worthy of note that Drs. Hellman and Wenker have found that from 79 to 81 per cent. of arrested jaw development occurred in babies who were artificially fed.[2]

The pernicious habit of thumb or finger sucking is often a problem to be met by the physician. Ordinarily he is consulted only after the usual treatments have failed. An aluminum mitten or a large woolen glove, bound up to include the whole hand, or some similar device that makes the child's hand so bulky that it is impossible to introduce it into the mouth, is sometimes sufficient to break the child of the habit. Serious oral consequences may result with the continuation of this habit. A simple, satisfactory and ingenious method which is occasionally used is that of employing some appliance which covers the child's palate and hence removes the satisfaction derived from sucking.

Another habit influencing malocclusion is the constant biting of the lips, which causes continual pressure on the front teeth. It is not so common as thumb sucking, and, moreover, is one that is easily broken; but if this habit is allowed to continue, there is a protruding of the front teeth, and also a receding of the lower distal arches.

NUTRITIONAL DISTURBANCES

Clinically, it has been found that nutritional disturbances are one of the outstanding etiologic factors of malocclusion. Because of improper nutrition, there is frequently an asymetrical development which causes a disturbance in function, this, in turn, resulting in an interference of the local nutrition, with subsequent loss of anatomic form.

Rickets is one of the worst conditions in the causation of malocclusion, and is also responsible for some of its severest forms. There is often a marked jaw deformity in cases of moderate rickets. Even mild cases of rickets clinically show some jaw deformity. The arrest in the development in the maxillary bones in rickets usually causes some degree of malocclusion, although sometimes it may not be susceptible of treatment.

Deprivation of proper masticatory exercise interferes with the proper development of the face bones and face muscles. This factor introduces the question of the physical properties of food. The modern methods of food preparation tend to cause disuse of the jaws and teeth. Soft, mushy food of the present day diet is bound to cause a lack of vigorous mastication, which is so vital to proper jaw development. Vigorous mastication causes the masseter muscles to have a widening effect on the lower jaw, which tends to widen the arch of the maxilla and the palate. A normal nasopharynx and roomy nostrils result from this widening effect. If the child has been kept on bottle or soft food fifteen months or more, it is sometimes difficult for him to learn to masticate properly.

ABNORMALITIES AND DEFORMITIES

When there is a lack of muscular action in parts of the body other than that of the face, there results no concomitant bony deformity. But not so with the bones of the face; it has been pointed out previously that masticating action causes bone growth by a mechanical stimulus, and that absence of or insufficiency of hard food does not furnish the necessary muscular action to cause the necessary mechanical stimulus.

Chewing involves the use of the muscles of mastication which are attached to the bones, and results in growth of the jaws, ample to accompany the teeth in normal occlusion. In looking over sample diets recommended, one cannot help feeling that there is a lack of proper food from a physical and mechanical point of view, to insure proper and ample functioning of the masticating muscles.

Only normal mouths can perform normal functions. Malocclusion always indicates abnormal functioning. Normal occlusion means the health of the teeth and their surrounding parts. Malocclusion implies a pathologic condition of the teeth and surrounding tissues. It is the experience at the Forsyth Dental Infirmary that a well formed mouth rarely harbors any significant oral disorders. By a well formed mouth is meant one in which all the teeth in both arches are so situated as to have the proper interrelation, with the portions of the teeth in the arches in such a position as to give one another, singly and collectively, the greatest possible support.[3] Malocclusion may result from any combination of one or two kinds of irregularities. that is, either the teeth all stand in line and the jaws are disproportional in size, or the jaws are proportional in size, and the teeth are improperly placed in line. As there are no two faces alike, so there are no two dentures alike; therefore there cannot be any criterion for normal or abnormal occlusion.

Children who are underdeveloped frequently have dental arches which are too narrow. An indication of lack of vigor is shown by the improper development of the arches. Supernumerary teeth are usually an indication of malocclusion.

Prognathism, a marked projection of either jaw, is easily recognized. The diagnosis of severe or moderate degrees of malocclusion is also comparatively simple. The upper arch is frequently narrow and lengthened, although there may be little or no crowding of the teeth. It remained for the late Dr. E. A. Bogue[4] of New York to interpret properly the diagnosis of malocclusion in its early stages. Temporary teeth are much smaller than permanent teeth. If before the eruption of the permanent teeth there is no spacing between the deciduous teeth, there will surely be insufficient space for the larger permanent teeth when they erupt. Therefore, the presence of perfectly close, regular teeth after 5 years of age is an indication for treatment, since Nature must be aided if there is to be sufficient room for the permanent teeth to come. Spreading apart of the baby's teeth begins to take place before the third year. At three and a half years the

2. Wenker, R. J.: Dental Item of Interest **41**: 619 (Aug. 19) 1919.

3. Angle, E. A.: Treatment of Malocclusion of the Teeth, Philadelphia, S. S. White Dental Manufacturing Company, 1907.

4. Bogue, E. A.: Internat. J. Orthodont. **7**: 242 (May) 1921.

upper dental arch must measure at least 27 mm. in the lateral width between the temporary molar region. If at 4 years the breadth is less than 28 mm., it is absolutely certain that the child will not have a normal arch unless it is aided artificially, for the child will not outgrow the defect. This measurement is the distance between the second deciduous molars and is taken by means of a caliper; from 28 to 30 mm. is the variation of a normal width, and any measurement below 28 mm. should be considered abnormal. An abnormal measurement is sufficiently reliable to warrant a diagnosis. The measurement of this width is simple enough to advise that the use of the caliper be added to the ever increasing armamentarium of the physician.

About two years before the permanent teeth erupt, their growth within the tissues causes a distal enlargement of the dental arches. This widening causes the spacing between the temporary teeth which is normal and should be sought for between the ages of 4 and 6 years. Frequently, in cases tending toward abnormality, spacing is found only between the anterior teeth. Spacing, however, should occur between all the teeth in the mouth. If the child's general development is slower than the average, the spacing occurs at a correspondingly later age. This fact is one which is important to remember from the point of view of diagnosis and treatment.

TREATMENT

Once the diagnosis of malocclusion is made and there is no further mechanical hindrance, the patient should be turned over to the orthodontist for treatment. Previous to this, the rhinologist should be consulted to determine and treat any mechanical interference to breathing, so far as is practical. Thus, the physician, in conjunction with the rhinologist and the orthodontist, is directly concerned in the treatment of every case of malocclusion.

As has already been stated, abnormal conditions will not correct themselves, and the forces involved tend to maintain and exaggerate these abnormalities. On the other hand, there is a remarkable and prompt response on the part of Nature to correct malocclusion as soon as favorable conditions are established. The treatment of malocclusion should begin as early as possible, thirty months of age being considered the most favorable time. The younger the person, the more plastic the tissues. The longer the teeth remain in malocclusion, the more fixed and unyielding become the surrounding tissues. For this reason it is far easier to move teeth about the socket of the alveolar process in younger than in older children. As each succeeding and permanent tooth erupts, the chances for complete success are diminished, and the duration of treatment is lengthened. In early treatment, only slight force is necessary to direct each erupting tooth to its proper position, as the growth and repair are most rapid, and the tissues yield very easily. However, if treatment is postponed, the situation becomes more complex as treatment involves the whole dental apparatus; the teeth are more firmly held in the socket, and the muscles are already altered to work in unison with malocclusion, as is evident by the firmly fixed lines.

Treating the dental deformity before the sixth year insures not only good mouth functioning but also correct breathing, since the width of the maxillary arch determines whether or not there is room for normal nasal breathing. Narrowing of the nasal spaces is the result of malocclusion because of a deflection of the septum. Early treatment of the arches either prevents or relieves narrowing of the nasal spaces; the width of the nasal floor is dependent on the width of the upper dental arch.

In fact, the growth and development of the mouth and tissues are so closely interwoven with the nasal spaces that any pathologic disturbance in one will cause disturbance in the other. Besides the nasal development and function being corrected through the correction of malocclusion, there will also be an improvement in the usually accompanying faulty posture, curvature of the spine, and abnormal development of the chest. Faulty and narrow jaw development causes the eustachian tubes to be so curved that the orifices close or tend to be closed. This naturally causes deafness or impaired hearing. Improvement of the jaw, if it is the cause of existing aural conditions, will aid this materially.[5] Correct pronunciation is seriously interfered with if the arches are in an abnormal position. This is especially true of the letters F and V, which are enunciated by sudden escape of air between the lower lip and the upper front teeth. Faulty habits of enunciation are corrected more easily in early than in later childhood. It follows that the earlier the correction of the deformity is undertaken, the more likelihood there is for proper enunciation and proper tone.

Dr. Bogue states that the child's brain at 6 years is within 40 gm. of its weight at 19 years of age; hence it is most important that all irregularities of the face and teeth should be corrected before the sixth year, while growth is at its maximum. He asserts that the growth of brain tissue is retarded mechanically by poor occlusion. For these reasons and many more that can be enumerated, the physician should be on the lookout for normal arches in children between the ages of 2½ and 6 years. Doubtful cases should be closely observed and treatment begun just as soon as diagnosis is established.

CONCLUSION

From the foregoing few facts, it is seen that the dental apparatus is not an organ with a single function which may be compared to the other organs, for example, the eyes and ears, treatment or lack of treatment affecting those alone. The impairment of the dental apparatus, because of its very complex structure, includes also the impairment of muscles of mastication, voice production and voice sound, teeth, dental arches, facial expression and beauty of face. All of these functions are performed properly only if they are developed properly, and if there is any impairment in even a part of the dental structures, the result is improper functioning of all the complex acts described above, in addition to an unattractive countenance. Not only is there a tendency on the part of Nature to cause these abnormal conditions to progress, but Nature will show herself at her best in maintaining and continuing to maintain the entire dental apparatus in proper condition, and therefore proper functioning, if the dental apparatus is in order or is guided to be in proper working order.

The final responsibility of oral disorders rests with the physician. It should be his particular care that proper measures for prevention and treatment of malocclusion be introduced at the proper age, in order that the greatest amount of good may be accomplished in the shortest time and at the least expense.

5. Wright, W. H.: J. Nat. Dent. A. 7:979 (Dec.) 1920.

"LOWER HALF HEADACHE" (NEURALGIC) OF NASAL ORIGIN

GLOSSODYNIA, OTALGIA, NAUSEA, PARAGEUSIA, VERTIGO, SCOTOMA, PHOTOPHOBIA, RHINORRHEA AND ASTHMA AS ISOLATED RELATED PHENOMENA *

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In 1908 I [1] described a "lower half headache" (neuralgic) which seemed to be related to the nasal (sphenopalatine or Meckel's) ganglion. In those cases, there was almost always a recognizable lesion in the district in which the ganglion lay, and the symptoms could be relieved by cocainization of the ganglion. Later, I found that typical lower half headache could be present without such a lesion and could not be relieved by such treatment. These were cases of sphenoiditis, hyperplastic or suppurative and I believed that the headache was produced by irritation or inflammation of the nerves which supply the ganglion. Such lesions, of course, are situated central to the ganglion and naturally are not influenced by cocainization of it. Treatment of the sphenoid is successful for these lesions.

CLINICAL PICTURE OF LOWER HALF HEADACHE

This "lower half headache" when complete consists of pain about the eye, the upper jaw and the teeth, extending to the zygoma and temple, with earache and pain in the mastoid, emphasized at a point 5 cm. behind it. This point is always tender on pressure, although the pain is often temporarily absent. Thence, it extends to the occiput, neck, shoulder, scapula, arm, forearm, hand and fingers. This is the pain, or neuralgic, syndrome. There may, however, be added to this a sympathetic syndrome of sneezing, rhinorrhea, lacrimation and photophobia. The sense of taste is usually slightly diminished on the anterior half of the tongue, and occasionally there may be parageusia or vertigo. There may be slight motor and sensory disturbances in the soft palate, which are clinically negligible save for an imperfect opening of the eustachian tube in swallowing.

Such is the ordinary or routine syndrome. These postnasal lesions — ganglion or sphenoid — do not always produce the ordinary syndrome. Not infrequently they produce ophthalmic migraine, sometimes complete, that is, the attack begins with scotoma or hemiopia, then headache, nausea or vomiting, aphasia and, finally, hemiparesis. Ophthalmic migraine is definitely cyclic. The aphasia and hemiparesis, however, are rarely present.

More rarely such postnasal lesions produce "lower half headache," accompanied by nodules in the scalp and nape of the neck, which sometimes disappear after the attack and sometimes remain for a longer period. In these cases of "nodular headache," it has been thought that the nodules produced the headache.

ISOLATED PHENOMENA

Were each of these clinical pictures always complete there should be little difficulty in referring them to their origin. This, however, is rarely true. Many of the symptoms are usually present; but there is a small percentage of cases in which only isolated symptoms are present. As this fact becomes better known, probably the number of cases reported will be larger. The cases presenting only isolated symptoms are obviously the most obscure. They are encountered in all departments of practice and give rise to much difficulty not only for the patient but also for the physician. They are probably met least often by the rhinologist because there are no symptoms to direct attention to the nose.

The cases of isolated symptoms of nausea, vertigo and the like, referable to the postnasal district as the etiologic factor, in my experience, were first recognized in cases in which a well defined "lower half headache" had been present for some time before and had brought the patient to my care. In these patients there was an absence, at those times, of all other symptoms of the "lower half headache" which had become so well known both to the patient and to me. In the nasal ganglion cases, they were relieved by cocainization of the ganglion, and in the sphenoidal cases, by intrasphenoidal cocainization. Later I learned that such symptoms could be constantly the only manifestation of the postnasal lesion.

In connection with a mention of isolated phenomena related to the "lower half headache" of nasal origin, it is of interest to cite some other phenomena that are controllable from the postnasal district but which at present cannot be recognized as in any way associated with "lower half headache." Conspicuous and most interesting, in this class, is glossodynia. At the meeting of the Southern Medical Association, Nov. 17, 1921, Dr. L. W. Dean reported that glossodynia could be controlled by cocainization of the nasal ganglion, and that permanent relief was obtained by alcohol-phenol injection of the ganglion. I have since verified Dr. Dean's observation in four cases of glossodynia of years' standing that had resisted all treatment by the most sagacious physicians, besides my futile efforts. These patients had never had "lower half headache." Any one who has ever had to do with glossodynia, not only patient but physician as well, will welcome this possible relief. In my experience, nothing has been more resistant to all treatment than glossodynia. The mental relief is as great a comfort to the patient as the cessation of physical pain. Such patients almost always believe they have cancer of the tongue, despite the assurances of the physician to the contrary.

At the meeting just referred to, I reported the observation that earache of inflammatory middle ear origin could be controlled by cocainization of the nasal ganglion. I have not, however, had a sufficient number of such cases to state how often this may be true. At the same time, I reported that pain in the lower jaw, after the difficult removal of teeth, could be controlled by cocainization of the nasal ganglion; but I do not know with what regularity. Dr. W. V. Mullin of Colorado Springs had a patient with trigeminal neuralgia with much pain in the lower jaw. He controlled the pain by cocainization of the nasal ganglion.[2] Reflex earache after tonsillectomy may also be controlled in this way.

Nausea is encountered in all lines of practice and may be obscure in origin. Physical pain when severe may cause nausea, and I believed this to be the explanation of it in "lower half headache." A few years ago, however, I learned that it could be an

* Read at the meeting of the Tri-State District Medical Association, Peoria, Ill., Oct. 31, 1922.

1. Sluder, Greenfield: The Rôle of the Sphenopalatine (Meckel's) Ganglion in Nasal Headache, New York M. J. May 23, 1908.

2. Personal communication to the author.

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isolated phenomenon in postnasal lesions. I have seen purposeless vomiting continue for twelve hours, and stop five minutes after cocain was set for anesthesia of the nasal ganglion. This happened in a case of severe "lower half headache" of nasal ganglion origin which could be controlled from the ganglion. On this occasion, however, there was no headache. The previous association led me to experiment with cocainization. Since then, I have found that it is not infrequent that patients with postnasal lesions complain only of more or less slight nausea; but sometimes they complain emphatically.

Parageusia is occasionally encountered in "lower half headache." I have from time to time heard it described as an unpleasant metallic taste. Usually, it is clinically negligible. On one occasion, however, I found it as an isolated symptom. In this case the patient complained of a constant bad taste in her mouth that spoiled her appetite and often led to nausea. She complained very much of not being able to eat because of it. She had lost 10 pounds (4 kg.) in weight. She had a well marked hyperplastic postethmoid sphenoiditis without secretion. Cocainization of the nasal ganglion, repeated six times, stopped the bad taste. Not infrequently patients complain of a bad tasting secretion or pus descending from the nose into the pharynx. In this case, satisfactory and prolonged observation eliminated this possibility.

Vertigo is a symptom frequently met in "lower half headache." It is usually described by the patients as a sensation of shifting of the earth from side to side under them. Rarely is it described as a rising or falling sensation. Never, that I recall, has it been described as a rotatory sensation. Occasionally it has been experienced only in the recumbent posture. I have met vertigo as an isolated symptom—not so infrequently. On one occasion a sphenoiditis had produced a choroiditis without headache. The degree of vertigo was such that the patient had to be supported by two men in order to walk. On opening the postethmoid sphenoid district, the vertigo ceased. The patient immediately stood up and walked alone. It is not the most infrequent of the isolated symptoms of the postnasal lesion.

Otalgia is common in the "lower half headache" and not at all uncommon as an isolated symptom. I have seen it many times, but it was Lillie [3] who depicted the disasters to which it may lead. He reported mastoid and middle ear surgery that had been performed in vain for otalgia, which was afterward controlled from the nasal ganglion.

Scotoma is an almost constant symptom in ophthalmic migraine, which, in turn, is very often of postnasal origin. I have seen it remain as an isolated symptom in cases of nasal ganglion origin after the ganglion had been injected, with relief of all other symptoms. The scotoma would appear from time to time, and the patient would recognize it as the aura of the attack; but the other symptoms would not follow. I have at times had patients with postnasal lesions who complained only of transitory blindness, and I concluded that it was the isolated scotoma of ophthalmic migraine. Postnasal therapy has relieved these patients.

Photophobia is common and often of high grade in the sympathetic syndrome of the postnasal lesion. I have found it to be an isolated symptom. On one occasion it was unilateral and of nasal ganglion origin. Injection of the ganglion relieved it.

Rhinorrhea is common in rhinologic practice as an isolated phenomenon of the postnasal lesion. Often, however, it has a complement of low-grade headache. Usually it can be controlled by injecting the ganglion. More rarely it is of sphenoidal origin.

Asthma occurs with postnasal lesions, sometimes with "lower half headache" and often without it.[4] Treatment of the postnasal lesion often relieves these patients.

In these observations, all possible precaution has been taken to exclude collateral possibilities as etiologic factors. Confusion may arise from the psychic effect of cocain. It was applied to other parts of the nose in the effort to ascertain what might be its influence. Answers by the patients in the beginning were sometimes confusing, but when the cases were severe and the experiment repeated several times the replies were conclusive. Diagnosis of the postnasal lesion has been given in detail elsewhere.[5]

3. Lillie, H. I.: Otalgia and Mastoidalgia Not Indications for Operation on the Mastoid Process: Report of Three Cases, J. A. M. A. **79**: 431 (Aug. 5) 1922.

4. Sluder, Greenfield: Asthma as Nasal Reflex, J. A. M. A. **73**: 589 (Aug. 23) 1919.

5. Sluder, Greenfield: Headaches and Eye Disorders of Nasal Origin, St. Louis, C. V. Mosby Company, 1918.

BALANCING THE DIABETIC DIET *

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The present interest in properly balancing the diabetic diet, stimulated particularly by the researches of Shaffer,[1] Newburgh and Marsh,[2] Woodyatt,[3] Wilder [4] and others, has led to efforts to work out a simple method of determining the food proportions required by any diabetic patient. As a working basis for treating diabetics, we may assume:

1. The patient's basal caloric requirements should be met.

2. Nitrogen balance can be maintained if the protein content of the diabetic diet is approximately 0.66 gm. per kilogram of body weight, provided sufficient carbohydrate and fat are burned to meet caloric requirements.

3. The glucose value of the diet consists of total carbohydrate intake plus 58 per cent. of protein intake, provided the patient is in nitrogen equilibrium.

4. The ratio of fat to glucose must be below the point at which a clinically significant ketosis appears.

The object of a balanced diet is to furnish sufficient calories to maintain a patient in nitrogen equilibrium without glycosuria or ketonuria. When the patient is not in nitrogen equilibrium, he is burning body protein and producing glucose from the glucose fraction of protein. The total basal caloric requirement may be established in several ways. Either the basal metabolism can be determined directly, or it can be figured from the Du Bois scale for height and weight. Persons suffering from severe diabetes with low glucose tolerance will be compelled to limit their activities

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1. Shaeffer, P. A.: J. Biol. Chem. **46**: 98 (March) 1921.

2. Newburgh, L. H., and Marsh, P. L.: Use of a High Fat Diet in Treatment of Diabetes Mellitus, Arch. Int. Med. **26**: 647 (Dec.) 1920. Marsh, P. L.; Newburgh, L. H., and Holly, L. E.: Nitrogen Requirement for Maintenance in Diabetes Mellitus, ibid. **29**: 97 (Jan.) 1922.

3. Woodyatt, R. T.: Objects and Method of Diet Adjustment in Diabetes, Arch. Int. Med. **28**: 125 (Aug.) 1921.

4. Wilder, R. M., and Winter, M. D.: J. Biol. Chem. **52**: 393 (June) 1922.

to the lowest point in order to reduce their caloric requirements. If the patient's basal requirements are not met by food, he will burn his body tissues, which in the severely emaciated means the body protein.

The use of low protein diet, especially in severe cases, is advisable for several reasons. To furnish sufficient calories without glycosuria or ketonuria, we must rely mainly on the fuel value of fat. This can be given to an extent limited by the antiketogenic factors in the diet; namely, carbohydrate and protein. Carbohydrate, within the tolerance limits, is completely oxidized and is, therefore, completely available; whereas, only 58 per cent. of the protein has antiketogenic function. Furthermore, as has been emphasized by Woodyatt, some of the end-products of protein metabolism are convertible into fatty acids. The specific dynamic action of protein in increasing metabolism is likewise important, especially in the more severe cases.

The amount of fat which the diabetic patient can utilize is the subject of much discussion. Fat must necessarily furnish most of the calories for the diabetic diet; and at the same time the amount the body can use without danger of acidosis is limited mathematically

FOOD VALUES AND VARIOUS KETOGENIC-GLUCOSE RATIOS

Carbohydrate Gm.	Protein Gm.	Fat Gm.	Ketogenic-Glucose Ratios		
			Wilder	Woodyatt	Palmer and Ladd
0	0	0	2.7	...	...
60	60	100	1.2	1.1	1.05
17	40	83	1.4	1.9	2.07
25	54	172	1.5	2.4	3.06
33	52	200	1.5	2.4	3.2
23	37	140	1.5	2.4	3.1
35	35	213	1.5	2.6	3.8
21	29	120	1.6	2.4	3.2
22	60	166	1.7	2.4	2.9
34	45	196	1.7	2.5	3.3
20	30	140	1.7	2.7	3.8
30	60	149	1.7	2.0	2.3
14	10	86	1.7	2.9	4.3
20	30	119	1.8	2.4	3.8
14	10	87	1.9	2.9	4.4
14	10	87	2.0	2.9	4.4

by the amount of glucose being burned. The mathematical ratio has been studied by Shaffer, Woodyatt, Palmer and Ladd,[5] Wilder and Winter; but both the method of figuring and the final ratio vary. Palmer and Ladd, assuming that the glucose value of the diet consisted of all the ingested carbohydrate plus 58 per cent. of the protein, found that acidosis appeared in diabetic patients when the fat in the diet (in grams) bore a ratio to this glucose value (in grams) of $\frac{2.5-4}{1}$. Wilder and Winter figured the ratio between the ketogenic and the glucose molecules in metabolizing food mixtures of thirteen diabetic and three epileptic patients.

It is, of course, futile to attempt to compare the actual mathematical ratios found by different methods of reasoning; but it would be of considerable clinical interest to see how the same diets as expressed in grams of carbohydrate, fat and protein compare in their ketogenic-antiketogenic proportions when figured out by the different methods. The report of Wilder and Winter contains an admirable table for this purpose, as all sixteen of their patients were without glycosuria or "a clinically significant ketosis," and the diets are given in detail.

I have, therefore, reconstructed their table, giving the food values and the K. G. (ketogenic-glucose) ratios of the original, to which have been added the ratios as figured by Woodyatt's formulas and by the method of Palmer and Ladd.

The significant facts drawn from these figures are: (1) all except one of the patients showed a higher ratio of ketogenic-glucose (as figured by Woodyatt's $\frac{F.A.}{G}$) molecules than Woodyatt considers safe; (2) all except three were within the $\frac{2.5-4}{1}$ ratio of Palmer and Ladd. Yet all of these patients were without a clinically significant ketosis, so that Palmer and Ladd's simple method seems justified in practice.

BALANCING THE DIET

If these statements are accepted in principle, a method of figuring the diabetic diet follows. The caloric requirements having been ascertained, the diet should aim to meet these requirements. Glucose tolerance is measured in the usual way, by giving a fixed diet for two days and determining the glucose excretion. The tolerance (T) equals the ingested glucose (C + 0.58 P) minus the excreted glucose (G). If the patient is in nitrogen equilibrium, the formula tolerance (T) = (C + 0.58 P) — G may be used. If the nitrogen excretion indicates a loss of body protein, the glucose value of this protein must be calculated; and, since every gram of urinary nitrogen is equivalent to 3.65 gm. of glucose, the formula becomes T = (C + 3.65 N) — G.

Given then, the weight of the patient in kilograms, the protein value of the diet may be set at 0.66 gm. per kilogram, according to the results of Newburgh and Marsh. The glucose fraction of this protein equals 0.58 P, which must be subtracted from the tolerance in order to ascertain the carbohydrate of the diet. The number of calories furnished by the carbohydrate and protein are subtracted from the total caloric needs, and the balance must be furnished by fat. If the amount of fat needed is in excess of the maximum $\frac{4}{1}$ ratio, it may be necessary to keep a patient temporarily on a subcaloric diet. If the amount of fat required is below the $\frac{2.5}{1}$ ratio, harm may result from giving more fat than is needed. On the other hand, we have seen some markedly undernourished patients who had been on a subcaloric diet for a long period show definite improvement when the diet was increased for the purpose of stopping loss of body weight. On the whole, our experience has been that better results are obtained when considerable latitude in fat allowance is practiced, provided we do not feed above caloric needs and do not produce a clinical acidosis.

SUMMARY

Based on the reasoning set forth above, the following simple procedure for balancing the diabetic diet is proposed:

1. Protein equals 0.66 gm. per kilogram of body weight, or 0.3 gm. per pound.

2. Carbohydrate equals the glucose tolerance minus 58 per cent. of the protein.

3. Fat should furnish enough calories to equal the basal caloric needs minus the calories supplied by protein and carbohydrate.

4. The amount of fat must be within limits which will prevent the development of ketonuria = $\frac{2.5-4 \text{ gm. of fat}}{1 \text{ gm. of available carbohydrate}}$

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5. Ladd, W. S., and Palmer, W. W.: Proc. Soc. Exper. Biol. & Med. 18: 109 (Jan. 12) 1921.

CARDIAC FUNCTIONAL TESTS*

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The Eldorado of a cardiologist would be some test or combination of tests which would definitely determine the functional capacity of a given heart. This has been long sought, but is still an accomplishment for the future. The methods which have been devised and reported may be roughly classed as exercise tests, respiratory tests, tests based on the estimation of blood flow by various methods and a few other procedures.

EXERCISE TESTS IN GENERAL

It seems worth while to describe briefly the character and field of some of these, and then, in more detail, to give the results of our experience with the two which, we considered, gave promise of the best results. Taking the exercise tests first, these are based on the effects of work varying in amount all the way from that involved in rising from the supine to the upright posture to that involved in hopping or in climbing a definite number of stairs at a given rate or even in raising a 40-pound (18 kg.) weight from the floor to arm's length overhead thirty times in sixty seconds. The effects of such exercise may be measured by changes in the pulse rate, systolic blood pressure, or diastolic blood pressure, both the extent of the departure from normal and the time interval during which this is sustained being taken into consideration. The tests based on changes in systolic blood pressure seem to be more reliable than those based on changes in pulse rate. Both methods have their advocates. Both give results which vary in different persons with the type of nervous makeup and general physical condition as well as with the cardiac power or reserve. The best French authors place no reliance on either test as indicating the condition of the myocardium or of the general cardiovascular apparatus.[1] There seems to be much the same feeling in the United States, although our authors have not been so definite in their denunciation.

Combinations of pulse and blood pressure changes after exercise have been used in making ratings of physical efficiency by Schneider[2] and, in a different manner, by Crampton.[3] Barach[4] has arranged a so-called "energy index of the circulatory system" which takes into consideration both systolic and diastolic blood pressure and pulse rate at rest. All these tests are open to the same criticism as that which holds for the individual tests of which they are composed, and none have enjoyed much favor.

RESPIRATORY TESTS IN GENERAL

Of the respiratory tests, the most popular at present is the determination of the vital capacity, which will be discussed later. The length of time during which the breath can be held corresponds roughly to this, and has been used as a measure of cardiac dyspnea and efficiency; but it is even more easily influenced by neurotic factors than is the vital capacity, and the differences between normal and abnormal are smaller, making the error proportionately greater. Expiratory power as well as pulmonary capacity have been measured by the height to which a column of mercury can be blown and the time during which this height can be maintained. These tests, too, have proved of but limited value.

The rebreathing apparatus, with the possibility of its clinical application as a test of cardiac efficiency, was a war product. In testing the response of aviators to high altitudes, or, what is the same thing, lowered oxygen tensions, it was found that the effects of loss of sleep, alcohol and heavy eating were readily detected by a failure of proper compensation to low tensions.[5] This was taken to indicate temporarily lowered physical efficiency, and it was hoped that by this means the true cardiac capacity might be determined. Careful observers, however, have found that even patients with definite clinical cardiac failure do not all show poor reactions to lowered oxygen tensions.[6] From the cardiologist's point of view, the results obtained do not justify the apparatus and time necessary to make the determination.

OTHER TESTS

Blood flow has been determined by the nitrous oxid absorption method, and has been shown to be considerably reduced in disease, as much as one half in well marked heart failure.[7] Venous pressure determinations have given much the same information; the easiest method is that in which the minimal amount of pressure is determined which is required to collapse the veins on the back of the hand, a water manometer being used.[8] Determinations of the oxygen and carbon dioxid content of venous and arterial blood have also yielded information regarding blood flow,[9] but all these examinations are open to the same objections: they tell little except in cases of definite heart failure, and they require considerable technical training and apparatus.

In examining cases of "irritable heart" during the war, use was made of a large number of drugs, but none proved of much diagnostic value. Perhaps the best one was amyl nitrite, simply because its effects closely resembled those of exercise. In general, the unstable heart responded by a greater rise in rate and greater drop in blood pressure than did the normal.[10] The effects on the pulse rate of a sudden flame or pistol shot were similar, and were considered by the investigators as giving some indication of functional value.[11]

In the examination of cardiac dilatation by means of the fluoroscope after coughing, it was found that normal hearts dilate appreciably under this increase in intrapulmonary pressure, returning to normal more

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* Read before the Boston Association of Cardiac Clinics, Boston City Hospital, March 16, 1922.

* From the Medical Clinics, Massachusetts General Hospital, and the Public Health Service Hospital, Parker Hill, Boston.

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4. Barach, J. H.: Energy Index of Circulatory System, Am. J. M. Sc. **152**: 84 (July) 1916.
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7. Lundsgaard, Christen: Recherches sur le debit par minute du cœur, Arch. d. mal. du Cœur, Jan., 1917, p. 45.
8. Brown, N. W.: Simple Method for Determination of Venous Pressures, Bull. Johns Hopkins Hosp. **29**: 93 (April) 1918.
9. Harrop, G. A., Jr.: Oxygen and Carbon Dioxide Content of Arterial and Venous Blood in Normal Individuals and in Patients with Anaemia and Heart Disease, J. Exper. Med. **30**: 241 (Sept.) 1919.
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11. Meakins, J. C., and Wilson, R. M.: Effect of Certain Sensory Excitations on the Cardiac Rate and Respiratory Rates in Cases of Irritable Heart, Heart **7**: 17, 1918.

rapidly than those with a weakened myocardium.[12] Similar observations have been made following a series of blows over the course of the abdominal aorta or excitation of the skin of the precordial area, but none have proved of practical value.

From all these procedures, we selected what seemed to be the best respiratory test, the vital capacity, and the best exercise test, that in which considerable work is done with dumb-bells, and the effect on systolic blood pressure observed. We then tried to determine the sphere of usefulness of each, and the extent to which it might be trusted.

VITAL CAPACITY

The test for vital capacity consists in having the subject inhale as deeply as possible and then exhale fully into a spirometer. It represents the greatest single expiration of which the patient is capable. This has been shown to be reduced in cardiac failure of the congestive type, and, if failure is well marked, there is a reduction of more than 10 per cent. below the calculated normal in 100 per cent. of cases. And the greater the failure, in general, the lower the vital capacity.[13] In our endeavor to determine its sphere of usefulness, we made a test of vital capacity virtually a routine in all medical ward patients, and the figures in the accompanying table and charts are based on the findings in a series of 144 such patients, forty-eight of whom had some cardiac complication, sixteen some pulmonary involvement, and eighty nothing in the history or physical examination which suggested a pathologic condition in the heart or lungs. The figures for normality used are those of West,[14] based on sex and surface area and determined from healthy persons, not from ward bed patients.

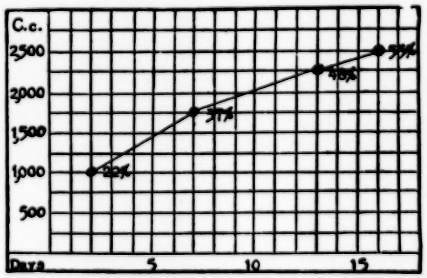

Chart 1.—Vital capacity in case of congestive heart failure, showing steady improvement.

The accompanying table shows that of the eighty patients with extrathoracic lesions 50 per cent. had vital capacities which were at least 20 per cent. below the calculated normal, supposedly a definitely pathologic reading, and yet those persons had no demonstrable pathologic condition in the heart or lungs. These low readings may be in part explained by the apparent effect of increasing age acting to lower the vital capacity, and by the fact that the standards seem disproportionately high for the female sex. Taking the group to which the standards of normality are best suited, namely, men below 50 years of age, there still remain, even in this group, 37 per cent. whose vital capacity is distinctly below normal limits, and yet these men had no intrathoracic lesions so far as we could tell. The diagnoses were varied, such as gastric ulcer, duodenal ulcer, pyelitis and arthritis, while other ward patients having the same diagnoses had vital capacities well within the normal limits, so that the type of disease seems to have nothing to do with these low readings. Variable cooperation we do not believe can explain the large percentage of low readings, as many were repeated after several days and found to check, and the number of uncooperative ward patients does not approach 50 per cent. in other studies.

Of those patients with pulmonary complications for whom vital capacities were obtained, a group of sixteen, all had readings which fell below 65 per cent. of normal, the diagnoses ranging from bronchitis to convalescent lobar pneumonia. There seems to be no question that almost any pulmonary complication will lower the vital capacity, at times more markedly than moderately advanced cardiac failure.

In the cardiac group, most of those who had no congestive heart failure had normal vital capacities, while 100 per cent. of the patients with congestive failure had low vital capacities. Patients with anginal failure did not necessarily have lowered readings. The vital capacity often varied in close correspondence with the clinical improvement. For example, Chart 1 shows the change in vital capacity of a man, aged 56, who came into the hospital waterlogged, markedly dyspneic, and with a rapid ventricular rate in auricular fibrillation. He improved steadily and rapidly, just as the chart indicates. From the slowing of the heart rate, the diuresis and the loss of weight, and from the disappearance of the edema and dyspnea, we knew that he was improving and that the prognosis was good, so that following the vital capacity gave us little help in diagnosis or prognosis. It had remained stationary in some cases of less rapid clinical improvement, and it seemed often to lag behind clinical improvement. Thus, our experience with measurement of vital capacity in cardiac patients simply confirms the work of Peabody and others, except that we would place less reliance on it in giving a prognosis or in managing a case. The case cited demonstrates what seems to be the chief value of the test for vital capacity, namely, it furnishes a quantitative measure of dyspnea and describes it more clearly than such terms as "slight," "moderate" or "marked," since the personal equation enters into these to a great extent. When cardiac failure is proportional to dyspnea, vital capacity would be propor-

RESULTS OF VITAL CAPACITY DETERMINATIONS ON EIGHTY BED PATIENTS WITH NORMAL HEART AND LUNGS

		Men		Women	
Age	Vital Capacity	Number	Per Cent.	Number	Per Cent.
Under 50	Normal	24	..	7	..
	20 per cent. + subnormal	14	37	13	65
Over 50	Normal	7	..	2	..
	20 per cent. + subnormal	9	56	4	66

		Number	Per Cent.
Total	normal	40	50
	20 per cent. + subnormal	40	50

12. Guthrie, J. B.: Cough-Dilatation Time a Measure of Heart Function, J. A. M. A. 82: 30 (Jan. 3) 1914.
13. Peabody, F. W.: Vital Capacity of the Lungs in Heart Disease, Med. Clin. N. Am. 4: 1655 (May) 1921.
14. West, H. F.: A Comparison of Various Standards for the Normal Vital Capacity of the Lungs, Arch. Int. Med. 25: 306 (March) 1920.

tional to the failure, provided the standards were suitable to bed patients. We do not believe this to be the case, at least so far as hospital ward patients are concerned. Vital capacity, to our minds, adds to the clarity of the records, but rarely aids in the actual management or "sizing up" of a case.

EXERCISE TEST

The exercise tests are even less satisfactory. Selection was a more difficult problem; but the test which seemed to give most promise was this: The patient, if an adult, swings two 20-pound (9 kg.) dumb-bells from the floor to arm's length overhead ten, fifteen and twenty times, allowing from two to three seconds for each complete swing. Systolic blood pressure is then taken as soon as possible, usually within twenty-five seconds, and it is followed at from ten to fifteen second intervals until it is definitely dropping, then at thirty second intervals until it reaches within 6 mm. of the preexercise level of mercury. There is normally a sharp rise in systolic blood pressure within the first forty seconds after work, followed by a fall to within 6 mm. of normal within two minutes. If a healthy person continues to work at the rate described until he has nearly reached his limit of capacity, the maximum systolic blood pressure will not be obtained until from sixty to eighty seconds after stopping work instead of the normal forty seconds, and the preexercise level will not be reached until the end of from three to six minutes instead of two. Such a curve is said to have a "delayed rise" or "delayed summit" and "prolonged fall." [15]

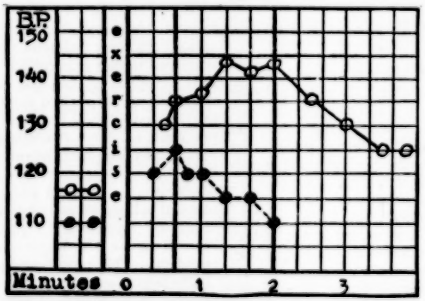

Chart 2.—Blood pressure response to exercise: normal curve indicated by heavy dots and broken line; delayed rise indicated by rings and solid line.

Chart 2 illustrates the two types of curve that are obtained. The lower one, which is a normal curve, was produced by a cardiac patient without heart failure. The upper curve, which presents a "delayed rise," was given by a patient with effort syndrome.

The two men were of about the same age and size, and they did the same amount of work, swinging two 20-pound dumb-bells, twenty times in sixty seconds from floor to overhead. Such a "delayed rise" occurs only when the person has nearly reached his limit, and is accompanied by fatigue, hyperpnea and, at times, palpitation, dyspnea, flushed face and the like. It never occurs unless the patient is near the end of his strength, and for this reason has been taken to represent an overtaxing of the cardiac capacity or reserve. Its sphere as applied to patients is obviously limited. It should not be used in cases with definite heart failure or in those showing evidence of infection. In cases without heart failure, however, it may serve, with good reason, as a basis for advice as to the amount of exercise which may be taken with safety. There would seem to be little need of restricting the exercise of a patient who can swing 40 pounds (18 kg.) from floor to overhead, twenty times in forty seconds, without a delayed rise in blood pressure, no matter what may be heard when listening to the heart.

Our experience has been limited to twenty-nine cases, these being divided into three groups, ten normal persons, ten with more or less marked effort syndrome, and nine with organic heart disease, all free from heart failure and evidence of recent infection. We made the mistake at first, which others [16] have made, of starting with weights which were too light, using two 5-pound (2.2 kg.) dumb-bells. With these, the arm muscles of the patients became tired from frequent motion long before they had done enough actual work to cause any marked changes in blood pressure. This is similar to the situation found occasionally in children when simple muscular weakness forces the child to stop before a delayed rise in blood pressure can be obtained.[17] It was overcome in adults by the use of larger weights, most of the tests consisting in swinging two 20-pound (9 kg.) dumb-bells from floor to overhead, fifteen and, later, twenty times in forty and sixty seconds, respectively.

Using this routine, it can be said that the work with our normal patients confirms that of the advocates of this test. Delayed rises were obtained on nearing the maximum exertion and not before. Work with the effort syndrome cases, however, was less satisfactory. Two patients showed blood pressures which changed so readily from second to second, with variations as great as 10 mm. of mercury, that no interpretation could be placed on the curves. Others showed a dissociation between the two features "delayed summit" and "prolonged fall," having none of the former, but definitely "prolonged falls" of three and a half and four minutes, or vice versa. Such curves also are difficult to interpret.

The cardiac patients with organic lesions showed essentially the same features. In both classes of patients, the "delayed rise" seemed to depend very much more on general muscular condition than on what might be guessed as their true "cardiac reserve"; two patients with effort syndrome with apparently normal cardiac musculature showed a delayed rise on fifteen swings of 40 pounds (18 kg.), while two patients with organic cardiac lesions did not show it until after performing twenty swings. Others have found this to be true, also, but have laid little stress on it. It prevents any reliance being placed on the test for diagnostic or prognostic purposes generally, so far as the heart is concerned, and confines its usefulness simply to following the individual case, even there realizing that the patient's general condition is being followed and not the cardiac condition. It is perfectly possible to imagine a man's exercise tolerance rising

15. Barringer, T. B., Jr.: Studies of the Heart's Functional Capacity, Arch. Int. Med. **20**:829 (Dec.) 1917. Cotton, T. F.; Rapport, D. L., and Lewis, Thomas: After-Effects of Exercise on Pulse Rate and Systolic Blood Pressures in Cases of Irritable Heart, Heart **6**:269, 1917.

16. Mahon, T. McC.: Studies of Cases of "Effort Syndrome" with Measured Work, Am. J. M. Sc. **158**:818 (Dec.) 1919.

17. Wilson, May G.: Exercise Tolerance of Children with Heart Disease, J. A. M. A. **76**:1629 (June 11) 1921.

through improvement in general muscular condition as a result of daily exercise, while his cardiac condition remains unchanged or even becomes worse.

This lack of specific information given by the test, the difficulties in interpreting many curves, together with the fact that there are no good standards for normality for adults, and the small number of cases to which the test is applicable make it, in its present form, an unsatisfactory test of cardiac efficiency.

The results of the vital capacity and exercise tolerance tests of our normal persons are in good agreement; but this does not hold true with our pathologic cases, if the previously accepted standards for vital capacity are used. Two cardiac patients had vital capacities of only 62 and 68 per cent. of the calculated normal, and yet very nearly normal exercise tolerance tests. Both were able to swing 40 pounds (18 kg.), fifteen times in forty seconds without showing a "delayed rise" or "prolonged fall" in blood pressure, and these were of small degree after twenty swings with 40 pounds (18 kg.) in sixty seconds. On the other hand, one cardiac patient with a vital capacity of 93 per cent. of the normal showed a marked "delayed rise" in blood pressure after swinging 40 pounds (18 kg.) fifteen times, as was also shown by a patient with effort syndrome with a vital capacity of 110 per cent. of the normal.

SUMMARY

1. There are numerous cardiac functional tests. Most of them are of small value. Two have been selected for further study.

2. Vital capacity determinations add to the exactness of records but give little aid in the clinical study of a patient. We have found that 50 per cent. of ward patients with no demonstrable pathologic condition in the heart or lungs have vital capacities of 20 per cent. and more below the so-called normal.

3. The exercise tolerance test described is applicable to a limited type of case, and even there gives little information of the actual cardiac condition.

4. Vital capacity and exercise tolerance determinations were markedly at variance in 14 per cent. of the cases in which both tests were performed.

5. There is no satisfactory test of cardiac functional capacity at the present time.[18]

18. Judgment in the interpretation of the general reaction of an individual to the habitual activities of his or her life (such as the ascent of stairs) affords the physician more valuable information, as a rule, about the circulation than the use of any of the functional tests described.

Vital Statistics.—One of the most important subjects that can come before a state legislature is the passage of wise and efficient laws for the collection, preservation and compilation of proper and accurate vital statistics. . . . In the last analysis, human life and its perpetuation is the predominant factor in all problems, whether personal, social, state or national. The standing of a nation, ultimately, is only to be measured by the standard of human lives. These general principles have long been admitted by all statesmen and economists. It comes as somewhat of a shock to one to realize that in a nation where a record is made of every legal procedure, of every business transaction and commercial liability, no matter how insignificant, where millions are spent each year in recording and preserving all real estate transactions, where everything else, material or immaterial, is made a matter of record; yet in more than half of the United States a human being can be born and die without any record being made or official notice being taken of the fact. Elaborate systems record the birth, career and death of every pedigreed horse, cow, dog, and even of "blood cats," yet children are born and men and women die without record of these events being preserved.—*A. M. A. Bull.* **4**:106, 1909.

THE MINOR FORMS OF PULMONARY EMBOLISM AFTER ABDOMINAL OPERATIONS

A CLINICAL AND ROENTGENOLOGIC STUDY *

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During the last few years the opinion that embolism is a more important factor in the production of postoperative pulmonary complications than has heretofore been suspected has gradually been gaining ground. Since 1920, representatives of several of the largest surgical clinics in America and Europe have accepted this conclusion (Boland,[1] Farrar,[2] Cutler and Hunt[3]). In January, 1922, DeQuervain[4] of Switzerland stated that following operations upon the stomach, "three fourths of the true postoperative deaths are due to lung complications—emboli, pneumonia and lung gangrene," and that in a good share of the cases of so-called pneumonia, the processes are really embolic in nature.

We[5] arrived at this conclusion in 1919, after having studied all the postoperative pulmonary complications and cases of femoral thrombophlebitis that had occurred in the gynecologic service of the Johns Hopkins Hospital during the preceding thirty years. At that time we expressed the opinion that 40 per cent. of our cases that had been diagnosed as pleurisy, and 12 per cent. of those diagnosed as bronchopneumonia or pneumonia had been in reality instances of pulmonary infarction and hence were due to pulmonary embolism. Moreover, we pointed out the clinical features on the basis of which we attempted to distinguish the embolic from the inflammatory pulmonary complications and laid stress on the importance of making this differentiation. This report was published in 1920.

There still seems to be a great deal of confusion concerning this subject. Certain observers have gone so far as to state that complications which have been considered inflammatory and irritative phenomena are due to showers of miliary emboli and that this is the cause of many of the cases of postoperative pneumonia. Others are apparently content with a noncommittal attitude, admitting that some of the cases heretofore diagnosed as pneumonia may be due to embolic processes, but making no effort to distinguish them in actual practice. In our experience, embolic phenomena present a clinical picture which is usually characteristic and altogether different from that found in pneumonia and bronchopneumonia; we also believe that the potential and actual importance of even minor embolic complications of the lung demand that we attempt to recognize them and institute the proper treatment.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

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2. Farrar, L. K. P.: The Incidence of Pulmonary Embolism and Thrombosis Following Hysterectomy for Myoma Uteri, Am. J. Obst. & Gynec. **2**: 286-296 (Sept.) 1921.

3. Cutler, E. C., and Hunt, A. M.: Postoperative Pulmonary Complications, Arch. Surg. **1**: 114-157 (July) 1920.

4. DeQuervain, F.: A Consideration of the Relative Merits of Resection and Gastro-Enterostomy in the Treatment of Gastric and Duodenal Ulcer, Surg., Gynec. & Obst. **34**: 3 (Jan.) 1922.

5. Hampton, H. H., and Wharton, L. R.: Venous Thrombosis, Pulmonary Infarction and Embolism Following Gynecological Operations, Bull. Johns Hopkins Hosp. **31**: 95-117 (April) 1920.

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The present communication is based upon a clinical and roentgenologic study of all the postoperative pulmonary complications that occurred on the gynecologic service between June 1, 1919, and Sept. 1, 1921. In the light of past and recent experience, how can we distinguish minor embolic complications from pneumonia, bronchopneumonia and pleurisy and what are the factors that control their production?

INCIDENCE OF ALL PULMONARY COMPLICATIONS

During the last two years, following about 1,600 consecutive gynecologic operations, twenty-five* patients, or 1.6 per cent., have developed noteworthy pulmonary complications. Of these, ten were definitely inflammatory in origin and were diagnosed either as bronchopneumonia or bronchitis, eleven seemed to us to be undoubtedly embolic and in four instances the exact nature of the lesion could not be determined. Of the eleven cases of embolism, two were of the well-known classic variety, terminating the life of the patient very suddenly. In nine instances, the complications were less serious and were of the type known as infarction. This is the form of postoperative embolism which is so frequently confused with pneumonia, bronchopneumonia and pleurisy.

PATHOLOGY OF PULMONARY EMBOLISM

There are many factors which play an important rôle in determining the type of pathologic lesion which develops in the lung after an embolus becomes lodged in the pulmonary artery. Among these may be mentioned the size of the embolus, the condition of the pulmonary circulation, the presence of infection either in the lung or in the embolus, and the position of the artery which is occluded. Of these, the most important consideration is probably the first, for whether the patient is subjected to only a few days' inconvenience or suffers sudden death depends largely upon the size of the embolus.

On this basis, then, we can divide the various postoperative embolic phenomena into three groups: (1) grave pulmonary embolism, due to large emboli, causing more or less complete occlusion of the pulmonary artery or its main branches, cutting off the circulation of more than one lobe, producing acute widespread pulmonary edema without hemorrhagic consolidation of the lung tissue involved, and terminating fatally in 90 per cent. of the cases; (2) pulmonary infarction, due to moderate sized emboli, not large enough to occlude the main trunks of the pulmonary system but completely occluding the smaller vessels in which they lodge, causing hemorrhagic consolidation and pleurisy and producing characteristic clinical signs and symptoms, with a mortality of from 15 or 20 per cent.; (3) pulmonary embolism with incomplete infarction, due to very small emboli which lodge in the pulmonary system and produce a characteristic, but mild, course of symptoms, the pulmonary lesion, however, for various reasons giving rise to either very few or no physical signs. We have seen no deaths in cases of this group.

In a previous communication we recognized as instances of infarction only those in which the lesion was outspoken and clinically unmistakable. As can be seen, we are now venturing to suggest that in addition to these characteristic cases there may be instances in which the emboli are so small and the pulmonary circulation so efficient that complete consolidation and pleurisy, with the attendant physical signs, do not develop although typical symptoms may be present. These we have called instances of incomplete infarction; the clinical and roentgenologic characteristics of this complication and the evidence in support of the view that it is a form of embolism we shall present in this paper.

CLINICAL PICTURE OF OUTSPOKEN PULMONARY INFARCTION

Pulmonary infarction is an embolic complication which usually occurs, as does femoral thrombophlebitis, during the second or third week of postoperative convalescence. Although very rarely seen after minor operations, it may occur after any type of surgical procedure which requires much dissection or after any laparotomy. The clinical picture is usually characteristic. The convalescence before the onset of the attack in most instances is quite uneventful; there is only one significant feature during this period, the presence of a low evening fever unaccompanied by any symptoms and usually exciting very little attention. Normally, in the absence of infection, the second week of convalescence is afebrile. We have observed, however, that in patients that develop pulmonary infarction the temperature curve before the onset of infarction usually shows a definite evening elevation, rarely reaching 100 F., but persisting throughout the late convalescence until the infarction occurs, at which time it takes a sharp rise. This prodromal fever we attribute to the phlebitis that precedes embolism and we still believe it to be a significant feature, for although many a patient may exhibit just such a temperature curve without developing any subsequent complications, it remains our most constant premonitory sign in those who develop pulmonary infarction.

The attack itself is usually sudden in onset, being ushered in by a sharp pleuritic pain in the side, almost always situated along the costal margin below the axilla or the scapula. This is accompanied by acute pain on breathing and a definite rise in the respiratory rate, the impossibility of taking a deep breath making it necessary for the patient to substitute numerous shallow respiratory movements. The pulse rate also rises abruptly, at times reaching 120 or 140 during the first few hours. The temperature may rise sharply on the first day, but is not so high as it is on the second or third day, when consolidation has developed. Cyanosis is not commonly seen in an attack of ordinary severity; there may be a certain amount of systemic shock and definite mental perturbation and anxiety. There is very rarely any cough or expectoration during the first twenty-four hours.

On the second day the symptomatology is usually intensified, the patient requiring morphin in frequent and large doses. In about half the cases, a slight cough develops at this time, but it is not a prominent feature. It may be totally unproductive or the patient may expectorate a moderate amount of frothy sputum, at times tinged with blood. This blood may be bright or dark. Hemoptysis, however, is not the cornerstone on which the diagnosis of postoperative pulmonary infarction rests. We found that it had occurred in only 36 per cent. of our cases before 1919; since then we have observed it in six out of nine cases of undoubted infarction in which consolidation was present. A patient may have a large area of consolidation as determined by the signs, symptoms and the roentgenogram and have almost no hemoptysis. The temperature rises distinctly during the second day, usually reaching 102 or 102.5 F., the respiratory rate remain-

ing at about 40 or 50 per minute, the pulse between 112 and 130.

This mode of onset clearly distinguishes this form of pulmonary embolism from the postoperative inflammatory lesions of the lung, and it is during the first few days of the attack that the diagnosis should be made. The fact that infarction usually occurs late in the convalescence, after a week or two of almost normal rest, that it is preceded by no symptoms or history of pulmonary infection, that it is ushered in by a sharp and unexpected attack, that it is not characterized by a distressing cough, shows no marked elevation of the temperature during the first twenty-four hours and presents practically no physical signs till the second or third day—these data stamp it as an embolic and mechanical phenomenon in sharp contrast with all inflammatory lesions which almost invariably occur during the first two or three days after operation, are often preceded by a definite history of recent pulmonary infection, and are characterized at the onset by fever, distressing cough, a profuse and purulent expectoration, impairment of the percussion note and many coarse and fine râles.

After the second day, the patient with bland pulmonary infarction usually begins to show signs of definite improvement. The fever gradually subsides, the pulse becomes slower, the pleuritic pain less severe, the respirations deeper and more regular, and the restlessness less disturbing. By the end of a week, the patient usually feels quite well again and, except for a slight "catch in the side" on deep respiration and an occasional cough, has very little to remind her of the attack through which she has just passed.

PHYSICAL SIGNS IN PULMONARY INFARCTION

The physical signs during the course of the attack are quite characteristic. It is rather unusual to find any significant changes during the first twenty-four hours. After that, however, as the hemorrhagic consolidation develops, the evidence begins to accumulate. The presence of a friction rub is the most reliable physical sign. It is usually first noted on the second or third day and may persist for almost a week. Before 1919, we noted its presence in 75 per cent. of our cases; since then we have seen only one patient in whom this sign was absent. Impairment of the percussion note, râles and changes in the breath sounds are found in more than 50 per cent. of these patients. The physical signs usually persist for a week or two after the symptoms have largely disappeared; they become less marked as the infarct resolves.

INCOMPLETE PULMONARY INFARCTION

The clinical picture described above develops when an embolus of moderate size becomes lodged in a dependent portion of the lung or when there is pulmonary stasis and congestion. What happens when the emboli are smaller or when the pulmonary circulation is more efficient?

Until recently we could give only a theoretical answer to this practical question. Within the last two years, however, we have accumulated data on which to base more definite conclusions. These clinical conclusions, moreover, are supported by the experimental evidence furnished by Karsner [6] and his collaborators.

According to these observers very small sterile emboli, when introduced experimentally into the pulmonary artery, produce significant lesions in normal lungs only when they lodge in vessels which are situated along the angular borders of the lobes. On the contrary, if the general pulmonary circulation is definitely impaired and pulmonary stasis and congestion are present, emboli of the same size produce infarcts no matter where they lodge. During the first twenty-four hours after the introduction of the emboli, the lesions produced in normal and congested lungs cannot be distinguished from one another, even by the microscope; after that, however, their courses differ widely. In the presence of marked passive congestion, the lesions rapidly develop the complete pathologic picture of infarction showing absolute hemorrhagic consolidation, pleurisy and focal necrosis. In normal lungs, however, such lesions reach their maximum intensity during the first twenty-four hours, never pass beyond the stage of partial hemorrhagic consolidation, do not develop focal necrosis or pleurisy, and resolution is more prompt. It thus seems that even in normal lungs definite pathologic lesions have been produced by the embolic occlusion of small branches of the pulmonary artery and that these lesions are early or incomplete infarcts.

These experimental conclusions find a striking parallel in clinical observations that we have made in the last two years. During this period we have seen a number of patients who developed pulmonary complications, which during the first twenty-four hours were tentatively diagnosed as pulmonary infarction but in which the characteristic signs that mark this lesion failed to develop. Two such cases that were recently observed in the surgical service [7] were particularly instructive: A woman had had a cholecystectomy; a man, an appendectomy. Except for a slight elevation of the evening temperature, the convalescence of both patients had been essentially normal until the tenth day, when the man developed the typical symptoms of a light attack of pulmonary infarction. Daily examinations of the chest by medical consultants were essentially negative and almost as frequent roentgenographic studies revealed only the faintest shadows at the base of the lung. The patient had no cough, no hemoptysis and no symptoms other than severe pleuritic pain, shortness of breath accompanied by an elevation of the pulse rate, a moderate degree of shock and a temperature curve which was typical of pulmonary infarction. In the course of three or four days, the symptoms disappeared and the temperature reached its former level.

Sixteen days after her operation, the woman had exactly the same experience and in her case also the physical examinations were absolutely negative and the roentgenograms showed shadows which were so light that under ordinary circumstances they would have been entirely overlooked.

Although in both these instances we felt that the lesions were undoubtedly embolic in nature, we were quite unable to bring forward any evidence in favor of the supposition until a few days later when the man had a second attack, which in every particular resembled the first, except that it was more severe. We repeated the same careful studies during the course of this second episode and were rewarded by observing the development of an area of consolidation and pleural changes both by physical signs and by roentgenograms. During this attack the patient also developed a friction rub, râles, hemoptysis and a slight cough, thus making the picture complete. After having only partly recov-

6. Karsner, H. T., and Ash, J. E.: Studies in Infarction: Experimental Bland Infarction of the Lung, J. M. Research **22**: 205-224, 1912.

7. We wish to express our thanks to Dr. William S. Halsted for the privilege of studying these cases.

ered from these two embolic attacks, this man left the hospital against advice and promptly developed a third and almost fatal attack at his own home.

The foregoing clinical and experimental evidence seems to indicate that in patients who after operation have no organic lesions in the heart or lungs, the embolic occlusion of small branches of the pulmonary artery in certain situations may produce a lesion and a train of symptoms which during the first few hours cannot be distinguished from outspoken pulmonary infarction. Furthermore, in actual clinical experience it is quite possible that one would frequently find derangements of the pulmonary circulation which would present conditions far more favorable for the development of infarction than those under which Karsner and Ash produced it incompletely in normal lungs. Welch [8] states that any conditions which cause "weakness of the right heart, general feebleness of the circulation, emphysema, infective diseases" favor the occurrence of pulmonary infarction. These conditions are not infrequently found in patients who require surgical operations. It is also improbable that one would find the pulmonary circulation in a condition of maximum efficiency in a patient who had been subjected to an ether anesthetic and thereafter had been practically immobilized for two weeks. This is shown by the frequency with which evidences of hypostatic congestion and stasis are found during the course of routine examination of patients following operation. These derangements of the pulmonary circulation, though in themselves of little moment, might readily be conducive to the occurrence of pulmonary infarction should an embolus of sufficient size become lodged in a favorable situation. In this connection, it is significant that we rarely see an instance of postoperative pulmonary infarction in which the lesion is situated anywhere but in the dependent portion of the lower lobes.

This helps us to understand what we have repeatedly observed both in healthy and ill patients who, during the postoperative convalescence, have suffered minor attacks of pulmonary embolism. It is quite probable that in patients who are in excellent condition small emboli may lodge in the lungs and cause no significant symptoms whatever. If an embolus of moderate size occludes a vessel in a favorable situation, incomplete infarction and transitory inconvenience is the consequence. In the presence of pulmonary congestion the result is outspoken infarction, complete consolidation and pleurisy. Should the embolus be septic or the lung be infected, abscess or gangrene may develop. The presence of hemoptysis in only half of our cases of infarction is probably due to the fact that in most surgical patients the pulmonary circulation is far more efficient than it is in patients that suffer pulmonary infarction as a complication of myocardial insufficiency and failure of the right heart, and that as a consequence, in such cases the complete clinical and pathologic picture of infarction may not develop.

CLINICAL CONCOMITANTS OF PULMONARY INFARCTION

Femoral Thrombophlebitis.—As we have seen, one encounters postoperative pulmonary complications which resemble minor embolic attacks symptomatically but which lack some of the cardinal signs that mark this lesion. It is in such instances that we can call to our assistance the additional evidence which we find in the clinical associations of this complication. These aids we have found to be two in number: (1) the association of embolic phenomena with femoral thrombophlebitis; (2) the association of the primary attack with recurrent attacks of either bland pulmonary infarction or grave embolism.

In our previous series, we [5] found that 41 per cent. of our cases of pulmonary infarction were associated with femoral thrombophlebitis marked by pain and swelling of the leg. In 43 per cent. of these cases the pulmonary complication developed before the signs of phlebitis. Since 1919, three of our nine cases of pulmonary infarction have been associated with femoral thrombophlebitis. The presence of femoral thrombophlebitis, therefore, furnishes strong confirmatory evidence in favor of the diagnosis of pulmonary infarction when the clinical picture suggests the presence of this complication.

REPEATED ATTACKS OF PULMONARY INFARCTION OR EMBOLISM

In the last two years we have seen three instances of repeated pulmonary infarction, one patient having had two attacks separated from each other by an interval of almost three weeks; another patient had three distinct attacks separated by periods of seven and ten days, respectively; the third patient had four well defined and separate attacks which occurred after a miscarriage and femoral phlebitis. Bronchopneumonia and bronchitis usually do not present this clinical picture.

In our previous communication, we [5] reported the cases of four patients who developed grave pulmonary embolism after they had recovered from previous minor attacks. In the last two years, we have been fortunate in that none of our patients who have had minor embolic complications have later died in more severe attacks.

WHAT HAPPENS TO A PULMONARY INFARCT?

This is a question which we cannot answer assuredly. How soon and how completely resolution takes place, how frequently there remains a thickening of the pleura or a slight grade of fibrosis, we cannot as yet tell. We know that in the kidney and spleen infarction causes complete necrosis which heals by the formation of a fibrous scar which is permanent. In the lungs the collateral circulation is more efficient. Here we have found that an infarct resolves very slowly, nevertheless, and that for three or four weeks after the symptoms have disappeared one can still find evidences of the lesion by physical examination. In the few patients that we have been able to follow after they have left the hospital, we have been surprised to find that although physical examination may prove essentially negative and although the symptoms may have long since disappeared, the roentgen ray will occasionally still reveal a definite diffuse shadow in the area which was consolidated as long as several months before. This seems to be due to a thickened pleura and eventually clears up entirely. The late pathology of pulmonary infarction, however, awaits further investigation.

MORTALITY IN PULMONARY INFARCTION

In the series of nine cases of pulmonary infarction which forms the basis of this article, there were two deaths, both being due to lung abscess resulting from septic infarction. We previously reported a series of thirty-four cases with five deaths.

8. Welch, W. H.: Thrombosis and Embolism, in Allbutt's System of Medicine, New York 7: 155-285, 1899.

Under ordinary circumstances the patient with bland pulmonary infarction recovers both speedily and completely. In such cases the chief causes for concern are: (1) the presence of infection; (2) preexisting impairment of the pulmonary circulation; (3) repeated attacks of pulmonary embolism.

Infection is one of the most serious complications of pulmonary infarction. Whether the infection occurs because of a septic embolus or because of an inflammatory lesion in the lung, the result is usually the same—abscess formation or pulmonary gangrene. In such case the prognosis is extremely grave.

In half of our patients who have died of pulmonary infarction, the attack occurred during the first week of convalescence. Infarction is always apt to terminate seriously if it occurs during this period. The mortality in cases of pulmonary infarction which occur during the first week after operation is 50 per cent. This we have found to be due to several factors. During the first few days of convalescence, the patient is just recovering from the shock of the operation and the effect of her illness and may be in no condition to withstand the additional strain due to the pulmonary infarction. In such a patient a minor embolic attack may produce a symptomatic reaction, the gravity of which would be entirely out of proportion to the extent of the lesion. Furthermore, during this period the lungs are still irritated and congested, the bronchi may be inflamed, and under such conditions a fresh pulmonary infarct might furnish an ideal culture medium in which a low-grade, and otherwise insignificant, infection might attain full virulence. For these reasons it is rather fortunate that pulmonary infarction is a complication which usually develops during the late convalescence.

Fig. 1.—Recent pulmonary infarct in right costophrenic angle, with pleural thickening in the left costophrenic angle from an older lesion.

The most constant danger, however, that threatens the life of a patient who is recovering from an attack of bland infarction is the possible recurrence of pulmonary embolism in more serious form. The imminence of this catastrophe dispels all peace of mind. Before 1919, 40 per cent. of the deaths in our cases of pulmonary infarction were due to recurrent attacks of pulmonary embolism. During the last two or three years, we have learned to recognize these heretofore overlooked cases and have treated them with every precaution. It may be partly for this reason that we have not lost a patient from recurrent embolism since 1919.

This emphasizes the necessity of being able to diagnose these minor embolic phenomena and to recognize the serious note of warning that they sound. Until very recently the mention of the phrase pulmonary embolism instinctively brought to our minds only the tragic, spectacular and almost invariably fatal complication with which every surgeon is all too familiar. We have attempted to demonstrate that there are other manifestations of embolism, which, though in themselves far less dangerous, nevertheless, carry possibilities of grave significance. We have also attempted to demonstrate the clinical features that distinguish these cases from pneumonia, bronchopneumonia and pleurisy and have drawn attention to the necessity of making this differentiation.

ROENTGEN DIAGNOSIS

The roentgenologic diagnosis of pulmonary infarcts associated with chronic cardiac conditions has been well established for some time; but only since the introduction of the portable roentgen-ray apparatus have we been able to study the condition in relation to abdominal operations. It is obviously undesirable to move a patient suffering with a pulmonary infarct to the roentgen-ray department for examination; so we advise that the examination of the patient be made in bed by means of a portable apparatus. After we had examined a number of these patients, some of them repeatedly, we were able to correlate certain signs which we considered pathognomonic.

As may be expected, when we consider the pathology of the disease, all of the lesions which we were able to detect were situated in the dependent portions of the lungs. The first noticeable change was a clouding of the costophrenic angle, the rest of the lungs being clear. Under normal conditions the costophrenic angle, that narrow space of the thorax between the diaphragm and the ribs, should be clear at all times. The most frequent cause of a clouding of the costophrenic angle is either a small area of bronchopneumonia or a small pleural effusion, and it is significant that all of our early cases were regarded as having one or the other of these conditions before we understood the true significance of the lesion. In some of the very mild cases, the entire pathologic change was limited to the costophrenic angle and the clouding was so slight as to be almost overlooked; indeed, it was frequently necessary to make repeated examinations before we could make a diagnosis. While the roentgen examination revealed only a very small area of lung involvement, the patient had marked constitutional symptoms which were much more severe than the size of the lesion would indicate. This we believe is one of the characteristic signs of the disease.

The clouding of the costophrenic angle usually appeared within twenty-four hours after the onset of the symptoms. As has already been stated, there was very little change in the physical signs at that time; therefore the roentgen examination was of great assistance in making an early diagnosis.

In those cases in which a larger vessel was blocked, the pathologic changes were much more extensive and quite a large area of increased lung density occurred

at the base. We have never seen a roentgenogram which showed the involvement of a whole lobe, for patients very rarely survive embolic attacks of such magnitude. We use the term increased lung density to differentiate the condition from a pneumonic consolidation, because the shadow cast was not so dense as that of a pneumonia. The borders of the area of increased lung density were always very clearly defined, which is another characteristic sign of the disease. The area of increased lung density increased or diminished in size as the general condition of the patient improved or became worse, so that we were often able to plot the physical condition of the patient by studying a series of roentgen examinations. In some of the cases in which there occurred repeated attacks, the area of increased lung density reappeared with each attack.

The pleural changes appeared from the fourth to the tenth day, were quite severe and persisted for a variable length of time, some lasting as long as six months. The areas of pleural and lung involvement were approximately the same; but the pleural reaction was very marked and a large number of bands of thickened pleura were formed. This was indicated by a network of fine lines which appeared superimposed over the area of increased lung density. No matter how small an area of the lung was involved, we always found signs of pleural involvement, and while the condition in the lung usually cleared up in ten days or two weeks, the pleural changes always persisted for a much longer time, which also indicates a severe pleural involvement.

Fig. 2.—Large pulmonary infarct at left base involving a large portion of the left lower lobe.

A pulmonary infarct is to be differentiated from lobar pneumonia, bronchopneumonia and pleural effusions. It is easily differentiated from lobar pneumonia because, so far as we know, it rarely involves a whole lobe, nor is the shadow as dense as in lobar pneumonia. The differentiation from bronchopneumonia is somewhat more difficult because the shadow of a bronchopneumonia is not much denser than that of a pulmonary infarct, but its outlines are not so clearly defined and the pleural reaction is not so marked. Large and medium-sized pleural effusions are easily differentiated from pulmonary infarcts because they cast a shadow which is much denser and they have the characteristic meniscus-like outline, which is not observed in the infarct. Very small pleural effusions are the most difficult of all to differentiate because they begin in the very same area in which the infarction is first noticed and are not infrequently of the same density. The two differentiating points are, first, the formation of thickened bands of pleura which usually do not occur with small pleural effusions, and, second, the more profound constitutional reaction which is associated with the pulmonary infarct.

We do not believe that the lesion causes any permanent changes in the lung or pleura which can be demonstrated by the roentgen ray. We have never found any in those patients that were examined after the lapse of a year.

CLINICAL CONCLUSIONS

Embolism in its various forms is the cause of fully 50 per cent. of the noteworthy pulmonary complications that occur after gynecologic and abdominal operations.

Almost half of the deaths that have occurred after gynecologic operations have been due to pulmonary embolism.

Of the various forms of postoperative pulmonary embolism, pulmonary infarction is the most common, and until very recently was hardly ever recognized as an embolic manifestation.

Pulmonary infarction usually presents a characteristic clinical and pathologic picture and should be diagnosed. We have outlined the signs and symptoms on the basis of which we believe the diagnosis may be made.

The mortality in pulmonary infarction is between 15 and 20 per cent. Any conditions that cause feebleness of the circulation, pulmonary stasis or congestion not only favor the occurrence of pulmonary infarction but also increase the gravity of the complication. Any measures, therefore, which increase the efficiency of the pulmonary circulation tend to minimize the seriousness of this lesion.

We believe that pneumonia can be almost eliminated as a cause of death after gynecologic operations. Our ability to prevent pulmonary embolism, however, depends upon our ability to prevent postoperative venous thrombosis and phlebitis, a problem which is still largely unsolved.

In the diagnosis of pulmonary complications, the roentgen ray has been of invaluable aid. In pulmonary infarction, by this means, we have been able to establish the presence of lesions which have failed to develop characteristic physical signs.

ABSTRACT OF DISCUSSION

DR. EMIL NOVAK, Baltimore: Pulmonary embolism is one of the most tragic of all postoperative complications, and one against which we are more or less helpless. Any study, therefore, which increases our knowledge of this subject is all the more praiseworthy. Two points struck me as especially important. The first is that the occurrence of embolism is usually presaged by a suspicious elevation of fever, which should put us on our guard. The second is that the not infrequent occurrence of attacks of sharp pain in the chest during convalescence from operations should not be dismissed cursorily as "dry pleurisy." When such an attack occurs, it is usually treated by the administration of an analgesic and, perhaps, the application of adhesive straps to the chest. Bearing in mind the probability that such conditions are embolic, we should try to guard against the occurrence of the graver forms of embolism by keeping these patients as quiet as pos-

sible until the subsidence of the thrombophlebitis. In this way it is conceivable that we may avert a certain number of the more massive embolisms which so frequently mean death to the patient.

MIXED CELL SARCOMA OF THE BRAIN

REPORT OF CASE IN WHICH RECOVERY FOLLOWED THIRD OPERATIVE INTERFERENCE *

LEO M. CRAFTS, B.L., M.D.
MINNEAPOLIS

The case of cerebral neoplasm detailed in the succeeding context presents such striking and novel features in its behavior as to be deemed worthy of extended consideration.

REPORT OF CASE

History.—D. F., a man, aged 22, a salesman, referred by Dr. Martin Aune, April 14, 1920, while entering a building under construction, about the middle of the preceding January, struck his forehead a sharp blow against the edge of an overhead plank staging. There was severe headache for some hours, and he continued to feel somewhat listless and dull from that time on. About six weeks later a peculiar feeling developed in the lips on the left side, accompanied by tremor. Soon after this he noticed some difficulty in spelling and writing, so that it became necessary to dictate all his letters. He next found difficulty in comprehending what he was reading, and in one instance he was unable to understand all that was said to him in conversation.

The sensation in the lips increased, and he noticed diminishing power of motion in the whole left side of the face, together with slight difficulty in speech. About two weeks later he observed that the left hand was growing weak and

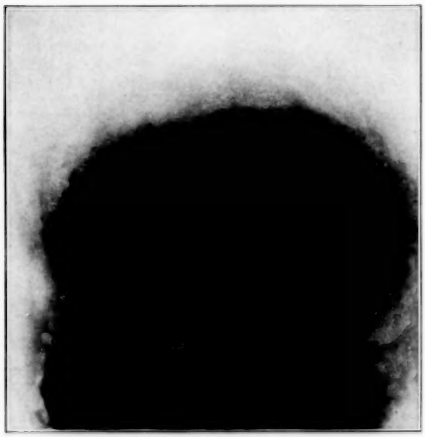

Fig. 1.—Appearance of larger, anterior neoplasm in right midfrontal region.

clumsy. About ten days after this, while seated in a restaurant, he was suddenly seized with an attack of marked vertigo, accompanied by sharp spasmodic turning of the head to the left, but with no obtunding of consciousness. There were several later attacks of dizziness but no other spasmodic manifestations at any time until long after the last operation. About the time of the vertiginous attacks he noticed a tendency to stagger to the left, and beginning weakness in the left leg. A little later he found difficulty in comprehending what he read and had to read slowly. He observed, too, that he was not always able to command the exact word he desired, and that there was quite definite retardation of thought processes. About this time there was

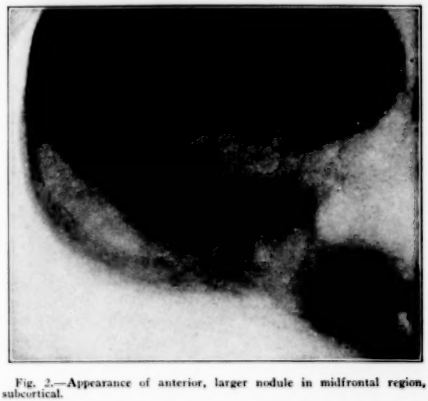

Fig. 2.—Appearance of anterior, larger nodule in midfrontal region, subcortical.

a sharp drowsy period, and he slept almost constantly for a number of days. Up to this time there had been no headaches or vomiting and no compromise of the functions of hearing, smell or taste. Nor had there been any disturbance of the intrinsic muscles of the eye, or of vision. There was full control of the bladder and rectum. There was no difficulty in recognizing objects or the names of persons and places, and no change in body weight.

There was nothing of material note in the family history except that the mother was of decidedly nervous temperament, and suffered an attack of nervous prostration when the patient was a baby. Two uncles, maternal, were left handed, and two cousins had red hair.

Examination.—The patient was well developed and nourished, was 6 feet (183 cm.) high, weighed about 180 pounds (81.6 kg.), and was of alert, rather highstrung, nervous temperament. The right pupil was distinctly larger than the left, and reacted well to light and accommodation. The iris had the normal velvety softness. There was marked rotolateral nystagmus of wide amplitude and slow rate, distinctly greater to the left. Fixation of the globes was poor. There was no diplopia and no involvement of the ocular muscles. The entire left side of the face was less mobile than the right. The palpebral and jaw reflexes were definitely increased. The biceps and triceps responses were greater on the left. The grip was weak on this side. The hand was cold and somewhat cyanotic. There was partial wrist drop, but no spasticity. Power of supination was reduced. There was no astereognosis. At the patellae the reaction was accentuated and definitely greater on the left, as was the Achilles. There was marked extension of the great toe to the Babinski test on the left and moderate on the right, but no ankle clonus. The abdominal reflexes were absent in all four quadrants, both to stroke and to tap. No objective sensory changes could be elicited. The patient showed slight clumsiness in the use of the left leg, while the station was fairly steady. The teeth and tonsils showed nothing of note. The blood and spinal fluid were normal. The pulse rate was 80, the blood pressure, 115 systolic and 80 diastolic, and the urine, negative.

A tentative diagnosis was made at this time of brain tumor, probably glioma or sarcoma, deeply situated in the right

*Read before the Section on Nervous and Mental Diseases at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

frontal lobe, beginning to impinge on the face center and the speech control area.

First Operation.—The unfolding of the clinical picture was so rapid as to be almost fulminating. On the second day after the initial examination, cephalalgia came on, accompanied by vertiginous attacks. Disturbance in expressive speech increased. The paretic condition of the left extremities advanced, with tendency to foot drop. The patient was hospitalized, April 27. The fundi were examined by Dr. J. S. Macnie, who reported finding marked double choked disk, the arteries small, the veins engorged, and considerable edema of the retina. Anteroposterior and transverse roentgenograms were made by Dr. Stephen Baxter (Figs. 1, 2, 3 and 4), which showed clearly defined shadows in the frontal lobe on the right, indicating probably two areas of foreign growth, one just beneath the frontal cortex about the size of an average English walnut, the other more deeply placed and smaller. Dr. W. A. Jones, in consultation, May 5, concurred in the diagnosis. Frontoparietal decompression was done by Dr. J. Warren Little, extending from the lower extremity of the motor area forward. The convolutions appeared flattened, the vessels were injected, and the brain mass bulged distinctly in the field, but no neoplasm could be located. The wound was completely closed. The hernial protrusion subsided. The cephalalgia and vertigo disappeared, and the papilledema improved. But there was marked increase in the paretic condition of the left side, especially the leg and arm, improving rapidly in the former, but not in the latter. The paraphasia diminished. Retrogression of symptoms continued for about a month, when the soft area of bony defect began to grow tense and bulge. Vertigo, unyielding cephalalgia and projectile vomiting came on. Rapidly increasing failure of vision, marked increase in speech disturbance and great loss of weight developed.

Second Operation.—The patient was again hospitalized and a second decompression performed by Dr. J. Frank Corbett, July 5. An extensive semicircular flap was turned down about the site of the preceding operation and the bone defect considerably enlarged, exposing practically the entire rolandic area and much of the frontal lobe. As the dura was incised, marked hernial protrusion occurred of normal pinkish gray, which soon showed, pointing near the center of the field, a small circular reddish brown mass, with clear line of demarcation from the normally colored surrounding surface, which

Fig. 3.—Appearance of anterior tumor, faint, and the smaller, deeper nodule, more distinct.

gradually delivered itself from the deeper brain substance, much as a small placenta might present itself extruded from the uterus (Fig. 5). This was carefully removed, leaving a clear bed. The wound was not entirely closed at the center. There was complete relief from head-pain and vomiting. Weight was rapidly restored. Dimness of vision and expressive speech disturbance improved. But the patient was not able to read at all. Power in the leg returned rapidly, but the arm remained completely paralyzed. The brain hernia diminished.

Third Operation.—Cerebrospinal fluid continued to ooze. There was slight accentuation of symptoms after about six weeks, and, September 2, on removing the dressings, Dr. Corbett found a reddish brown fungus-like mass appearing in the opening. The skin incision was enlarged without an anesthetic. Tissue in contact about the edges was cut away.

Fig. 4.—Appearance of two growths, the deeper nodule less clearly than the anterior.

The growth did not infiltrate, and was easily detached from the brain substance, by little strips of rubber packed under the tumor so as to protect the underlying, normal appearing, white brain tissue. The skin flaps were then allowed to fall together and heal without suture, which occurred rapidly and completely. Slides from both neoplasms, examined by Dr. A. C. McKinlay, were reported by him as revealing mixed cell sarcoma, possibly transitional (Figs. 6 and 7).

Results.—All conditions except that of the arm, which was spastic and almost completely powerless, showed uninterrupted improvement. Vision cleared steadily. The patient began to be able to read and later to spell and write, and retardation of thought disappeared. The motor aphasic difficulty diminished rapidly. There was no returning tension over the site of operation. Although the leg was somewhat paretic and spastic, he was doing considerable walking, and one day in March, 1921, after sharp overexertion, he had a generalized convulsion with loss of consciousness. There was no return of the old symptoms. Fundus examination by Dr. Macnie revealed no swelling of the disks; the margins were very plain but somewhat blurred on the temporal sides. The blood vessels were nearly normal, except for white lines along the arteries and veins within the area of the disks. There were slight changes in the choroid. No untoward incidents occurred until July, 1921, when following a death in the family, another convulsion occurred, and in September a third one, apparently due to overexertion and indiscretion in diet. About two months ago there was slight muscular twitching in the right scalp and some sensitiveness in the surface tissues.

Speech disturbance has almost entirely disappeared, showing only slight occasional hesitation or slurring of a syllable. Thought processes are normally alert. The ability to spell and write is fully restored, but he cannot yet read as rapidly as formerly. There is no discomfort in the head. The arm

is showing slight continued gain. The disability in the leg is stationary.

The right pupil is somewhat larger. Both pupils react well. There is marked lateral nystagmus, irregular, slow and of wide amplitude. The right does not converge. The fundus shows no change from the last examination. Vision, right eye, is 6/12; left eye, 6/6. The left side of the face is

Fig. 5.—Schematic drawing of brownish red mass that protruded through the pial surface.

slightly less mobile. The tongue protrudes somewhat to the left. The decompression area is soft and without tension. The left hand and arm are spastic. Motion is fair in the shoulder and elbow. The closed fist requires some force to open. The grip is good. Muscular tone and volume are normal. There is some spasticity in the leg. No sensory changes are found. All tendon reflexes are overactive and greater on the left. There is a sustained ankle clonus on this side and a marked Babinski and Crafts response, very slight Oppenheim, and no Chaddock or Gordon reactions. The abdominals are active on the right, slight on the left, and the cremaster reacts sluggishly.

COMMENT

Several unusual and highly interesting factors stand out in the symptom congeries of this case, including the interpretation of the somewhat elaborated speech disturbances in a right sided lesion; the apparently direct relationship of trauma etiologically; the remarkable behavior of the tumor mass or masses, and nonrecurrence after an interval of two years.

There is a tendency to lefthandedness in the family, and Foster Kennedy thinks that such puzzling cases may be due to these idiosyncrasies. The patient himself always spoke rapidly, but never stammered. He began to write with the left hand, was trained to use the right, but continued to use the left also up to a few years ago. He has always thrown a ball with the right hand, and bats righthanded, while the left is employed for a hammer or a saw.

The associated speech disturbances are difficult of explanation, so early, in a growth evidently remote from all centers controlling the function, and before pressure near or distant could account for it. It must be due in part at least to involvement of association tracts. Not all observers are in accord as to the location of the various centers of cerebration, and recent investigators dispute many of our established ideas on the subject. While speech control is usually considered unilateral, Wernicke holds that it is not exclusively so. And it would seem quite certain that in so ambidextrous a person as this subject, Broca's area on both sides must be functionally active. The rapid and complete restoration of both motor and sensory speech disorder is thus most reasonably explained. Speech is an acquired function, closely associated with manual dexterity, supposedly readily transferred in children, and less readily but possibly in adults, as shown in a case reported by Oppenheim. Why most persons are right handed and left brained is not explained.

If the shadowgraphs show the true location of the new growths, they did not encroach directly on the cortical speech centers or their peripheral fiber tracts. And in their transit to the surface they did not traverse them; yet agraphia and sensory disturbance in the lips were the first focalizing symptoms. The single sign of motor irritation was spasm of the right sternomastoid muscle, also from a remote area. And all occurred before there were any symptoms of general pressure. The moderate temporary compromise of psychic functioning, as shown in the retardation of thought processes and difficulty of comprehension, may perhaps be fairly attributable to the frontal location of the tumors; but general pressure effects must be taken into account, and we have no proof that the psychos is located frontally. He shows no present deterioration. The rapid, extreme loss in body weight before the second operation was probably in part due to malnutrition, but largely to disturbance of the hypophysis from pressure.

Fig. 6.—Appearance of slide from first tumor.

The actual causes determining the production of gliomas, sarcomas and endotheliomas in the brain are as yet unknown. Cohnheim holds that all such neoplasms have their origin in undeveloped embryonal cells stimulated to growth by some exciting cause. Whether trauma is to be accepted as a sufficient cause is disputed, or held not proven. Yet from 5 to 20 per cent.

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of all brain growths have been attributed to this factor. Bailey considers such a relationship established. And when in a patient previously well and a few weeks following a definite head injury, symptoms of tumor develop and follow the usual relentless course, trauma must be accepted as the clearly productive cause. It

Fig. 7.—Appearance of slide from second tumor.

was so accredited in this case, and compensation awarded.

In the preoperative diagnosis of glioma or sarcoma, rapidity in the unfolding of the picture and the age of the patient were the chief determining factors, and they are both commonly deeply situated, while no others show such rapid fulmination. Glioma is the most frequent, about one half of all, and is usually solitary or infiltrating, while sarcoma is often multiple, and is pigmented and discrete. Our roentgenograms showed one clearly defined focus and one of somewhat vague outline. The two self extruded masses were pigmented, multiple and clearly defined, characteristics in accord with microscopic findings as reported by the neuropathologist. Dr. E. T. Bell has recently examined the slides and designates them as glioma.

The behavior of the tumors under the succeeding stages of operative interference was highly interesting, instructive and unique. By reference to the roentgenograms and skull measurements it is clear that one of them must have passed through at least an inch of brain substance spontaneously to reach the surface, and was undoubtedly the one that appeared in the field in the second operation, while the lower, larger mass, situated just under the very frontal cortex, found its way through more than 2 inches (5 cm.) of white matter and cortex, appearing at the unhealed center of the skin wound, to be shelled out at the last operation.

The fact that the first decompression was done early undoubtedly saved the patient's sight and also accomplished much more; for it furnished a considerable area of soft, yielding tissue in place of the rigid, bony skull-box, near the location of the neoplasms. After the first operation the steadily increasing pressure produced an extremely tense hemispherical protrusion more than 2 inches in diameter where the bone had been removed, evidently carrying the tumors along the line of least resistance toward the surface, so that when all resistance was removed by the incising of the dura, the pressure from below in the lateral ventricles actually drove the mass through the pial surface in an astonishing demonstration, such as I have not been able to find in the literature of the subject. Leaving the wound of operation open in the center, partly a matter of necessity, proved to be a step of great value. It prevented the return of dangerous pressure, helping to protect vision, and enabled the second larger and deeper nodule to traverse nearly the entire distance across the frontal lobe, leading it directly to and through the open skin wound as a gateway of exit.

As it is now nearly two years since the last operation with no present indications of further recurrence, it may be fairly concluded that permanent recovery has been obtained. Expectant treatment of brain tumors wherever located is entirely futile. Their advance is inexorable. Decompression should always be resorted to—parietal or bilateral occipital, depending on the probable site of the growth, not alone to save vision, but because even though they are apparently unremovable, much suffering is avoided by the relief of the terrific cephalalgia and vomiting—to serve an exploratory purpose and to aid spontaneous movement of the growth toward the surface.

GLIOMA OF THE CEREBRAL HEMISPHERES

A COMPARATIVE STUDY OF TWO CASES*

TOM BENTLEY THROCKMORTON, M.D.

DES MOINES, IOWA

Tumors arising within the cranial cavity are, without doubt, of far more frequent occurrence than is generally believed. Not infrequently postmortem examinations reveal the presence of a growth involving the brain which gave few or no symptoms antemortem. It has long been conceded that the brain is a favorite site of new formations, and that among the more frequent type of tumors found in new growths of the brain, glioma holds a very high percentage. Glioma may vary in size from that of a hazelnut to that of a fist, or even larger. There is no sharply defined line of demarcation from the surrounding brain substance as a rule, and, in contradistinction to many other types of neoplasm involving the brain, this type of tumor does not extend by pressure, but rather by infiltration of the brain substance, destroying normal nerve cells and fibers and replacing them by pathologic tissue. As a result of this peculiar infiltration characteristic, these tumors, as a rule, cannot be simply shelled out from the surrounding healthy brain substance, and symptoms referable to increased intracranial pressure are more likely to occur late in the disease rather than

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to be the purveyors of the first crass signs of a cerebral neoplasm.

The salient points of neurologic interest occurring in two cases of glioma involving the cerebral hemispheres will be given, after which a comparative study of the symptomatology presented in each case will be undertaken in the hope that the study may prove of interest, and perhaps of some value, to those who are from time to time encountering problems of neurologic importance in lesions occurring within the cranial cavity.

REPORT OF CASES

CASE 1.—*Glioma of right cerebral hemisphere simulating epidemic (lethargic) encephalitis.* A physician, aged 32, white, single, first examined by me, Jan. 31, 1921, complained chiefly at that time of distinct motor weakness of the left lower extremity, and a slight motor weakness of the left upper extremity, conditions which had been apparent for only four or five days. The family history was entirely negative, and nothing of importance was found in the personal history, save that hearing in the left ear had been impaired since childhood, and it was thought at one time that possibly an apica. tuberculosis had been present. The emunctory functions of the body were properly performed, and the habits exemplary.

The mode of onset of symptoms was acute, and, in the light of subsequent developments, proved somewhat misleading. On arising, January 21, the patient noticed a somewhat general hypersensitiveness of the skin and, on combing his hair, some tenderness of the scalp was elicited. By evening, the temperature rose to 101.6 F., and general aching, of a "griplike" character, was experienced. The patient, however, did not confine himself to the house, and twenty-four hours later was seized, during the night, with a violent dysentery, associated with a tenesmus that became so marked as to cause the presence of small, bloody, mucoid evacuations by morning. The illness, apparently, was not severe enough to produce confinement to the house, and it was not until two or three days later that the first crass sign of impending danger revealed itself. Then weakness of the left lower extremity made its appearance, a weakness that was extremely insidious in onset, and one that was first noticed when the patient attempted to change the gears of his automobile with his left foot. Gradually, the weakness increased until there was a tendency for the left foot to drag. It then became apparent that some muscular weakness was present in the left arm and hand; otherwise the patient was feeling perfectly well. Within the next few days, however, the weakness of the leg became so marked that locomotion was greatly interfered with, and the patient finally consented to enter the hospital for examination.

Here, no localized tenderness could be found on pressing or percussing the skull. The pupils were equal, reacted promptly to light and in accommodation and convergence, the consensual reflex was preserved, and the fundi were entirely negative. The ocular movements were free and equal in all directions, and there was an absence of diplopia, nystagmus and hemianopia. The other cranial nerves proved negative on examination. The chest was negative for lesions of the cardiac or pulmonary systems. The grip was distinctly weaker in the left hand, but there was an absence of incoordination, dysdiadokocinesia or asynergy. The abdominal and cremasteric reflexes were preserved and active. Sensation to cotton, sharp and dull objects, and heat and cold was normal, and localization of touch was prompt and accurate. The deep jerks of the left upper extremity were a little more active than those of the right, while in the left lower extremity the knee jerk was exaggerated, patellar clonus present, ankle clonus absent, and pathologic toe signs by Babinski, Chaddock, Throckmorton and Crafts methods were obtained. Pulse, respiration and temperature were normal. Urinalysis was negative. Hemanalysis revealed the hemoglobin to be 85 per cent.; leukocytes, 8,000 per cubic millimeter; erythrocytes, 4,510,000 per cubic millimeter; polymorphonuclears, 77 per cent., and lymphocytes, 13 per cent. The blood Wassermann test and the blood culture were negative. The spinal fluid showed no increase in pressure; there was a slight flocculent deposit, the Wassermann test and culture were negative, and there was no excessive globulin, with cells numbering only 5 to the cubic millimeter.

February 8, the patient made his first complaint of headache. Three days later the eye grounds were examined by Dr. W. W. Pearson, with negative results. Then suddenly, February 14, the patient was seized, without apparent cause, with an attack of dyspnea, associated with the feeling of substernal oppression. The air hunger was marked to some degree, but no distinct cyanosis became manifest. Examination of the heart and lungs failed to bring to light the causal factor. By the following day, however, the dyspnea was not nearly so marked, and it was then noticed that there was a distinct loss of expansion of the left chest on inspiration, associated with a loss of the abdominal and cremasteric reflexes on the left side. Aside from an occasional headache, which was mostly frontal and about the right eye, no new symptoms developed until February 22, when, following the application of a plaster splint to overcome the left footdrop, the patient became ill with a sore throat, and had chills and a rise in temperature to 103 F. Following the recovery from the throat infection, some evidence of mental hebetude crept in, followed in a day or two by vomiting, which recurred at irregular intervals.

Fig. 1 (Case 1).—Frontolateral view of brain, showing softened area over upper portion of right rolandic area.

February 28, weakness of the right third nerve became evident; there was also a weakness of the musculature of the lower quadrant of the left face, and the tip of the tongue tended to curve a little to the left of the median line on protrusion of the organ. No sensory changes could be elicited. March 2, the patient became quite heavy mentally, and answered questions very slowly and deliberately. The oral temperature was normal, the pulse slow—60 a minute, but regular; the leukocyte count was 10,000 per cubic millimeter. The stereognostic sense, while apparently normal on the right side, was interfered with on the left side. There was an absence of any tenderness of the skull, roentgenograms of which were negative for osseous change. Pathologic toe signs, as before mentioned, were constantly present on the left side, and in addition, the Oppenheim extensor toe sign could now be elicited. Headache and, to some extent, vomiting occurred at times, and in addition, slight changes in the retina and vessels of the left eye were now reported present by Dr. Pearson.

Believing that the patient was suffering from a neoplasm involving the right motor cortex, I referred the case to an out of town neurologic clinic, where, after some two weeks' observation, the diagnosis of epidemic (lethargic) encephalitis was made on these grounds: "(1) the occurrence of the initial attack of an acute infection, followed in two weeks by the appearance of cerebral symptoms; (2) the fleeting character of the oculomotor disturbance; (3) the

acute respiratory attack; (4) the restlessness by night, and drowsiness by day; (5) leukocytosis of 21,000, and (6) the beginning return of power in the abductors of the thigh." Comment was also made that the "onset of papilledema (while suggestive of tumor) was not inconceivable as an accompanying lesion of encephalitis lethargica."

After the patient returned home, the hebetude became more and more pronounced, a well marked neuroretinitis developed, difficulty in swallowing ensued, and on April 4, respiratory and cardiac failure ended the scene.

A necropsy, limited to the brain, was performed by Dr. Julius Weingart, about twenty hours after death. The calvarium stripped readily from the dura, which was markedly injected and somewhat tense. There were a few small adhesions between the brain and the dura along the longitudinal sinus. The surface of the right hemisphere was edematous, while the superficial vessels showed engorgement on both surfaces. On the right hemisphere, anterior to and over the upper portion of the fissure of Rolando, was found an area of marked congestion and softening about the size of a silver dollar, which extended downward on the mesial surface as far as the corpus callosum. There was no visible evidence of tumor present. After the brain had been hardened, vertical sectioning revealed the presence of an infiltrating neoplasm occupying the right cerebral hemisphere, which measured, anteroposteriorly, 5.5 cm., in width 6 cm., and in greatest depth 7 cm. Microscopically, the neoplasm was pronounced a glioma, which diagnosis was later confirmed by Dr. William G. Spiller of Philadelphia.

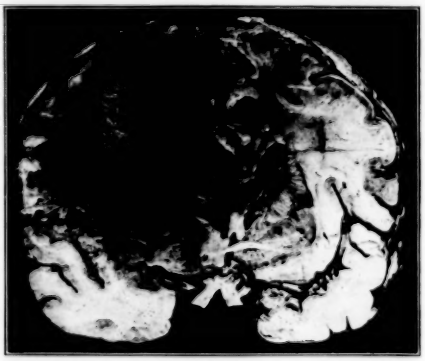

Fig. 2 (Case 1).—Vertical section, through hemispheres at level of optic chiasm, showing extent of glioma of right cerebral hemisphere.

CASE 2.—*Glioma of left cerebral hemisphere (simulating paresis).* A. P. B., a man, aged 39, photo-engraver, white, seen in consultation, Nov. 23, 1920, suffered from weakness of the right leg and arm, a condition which had been present following a "fainting attack" about four weeks previous. The family history was without note, and, from a personal point, the patient had never had a sick day prior to the onset of the present illness. For sixteen years, he had followed his occupation as an engraver; he was married, and his wife was living and well. About fourteen years before I saw him, his wife had aborted at about the third month, and no other pregnancies had since ensued. His personal habits were good, his appetite excellent, his sleep variable, but without dreams, and the kidney function normal, aside from difficulty encountered, within the previous three weeks, in starting the urinary flow at the time of micturition. There was no accompanying sphincter incontinence. Venereal infection was denied both by name and by symptoms, although its possibility was admitted. While the patient was not a constant user of alcohol, he had from time to time drunk whisky, and formerly drank beer freely.

The onset of the present trouble had occurred about a month previous and was ushered in by a symptom group which strongly savored of the possibility of the early signs of general paresis. While walking along the street one morning to his work, he was accosted by a pedestrian who asked for enlightenment concerning a certain business address. On attempting to give the desired information, the patient noticed that his tongue became thick and speech difficult and, without further warning, he was seized with unconsciousness, only to awaken shortly afterward and find himself in a local hospital. Confusion was present for two or three hours, associated with a slight headache. On the following day he was discharged from the institution, but found on attempting to walk that there was a slight weakness in the right leg. Some weakness was also noticed in attempting to use the right arm.

Four days later, a second attack occurred in which the tongue became thick, speech impeded, and tonic and later clonic movements of the right arm ensued, followed by a generalized convulsion with loss of consciousness and sphincter relaxation. The entire attack lasted ten or fifteen minutes, clearing rapidly, and was not followed by confusion or headache. A third attack was encountered some time afterward, but the repetition of a fourth and similar attack, November 22, brought the patient to me for examination.

It was then ascertained that slight rhombergism was present, and there was weakness of the musculature of the right lower extremity. There was also slight incoordination, but apparently equally so, of the upper extremities on the finger to nose test. Slight tremor of the hands was present, associated with weakness of the muscles of the right arm and hand, which condition may have been largely accountable for the awkwardness manifested in attempting alternately to pronate and supinate the right forearm. The grip was distinctly less in the right hand, although the patient was right handed. No marked inequality of the pupils was observed; the right perhaps was a little larger, but the reaction to light was sluggish, especially on the right side, while the power of reacting in accommodation and convergence was prompt and sustained. The consensual response was sluggish, the ocular movements were free and equal in all directions, there was an absence of nystagmus, diplopia and hemianopia, and the nerve heads and vessels, on ophthalmoscopic examination, appeared clear and distinct. There was some slurring of speech on test sentences, although there was no obvious weakness of the facial or tongue muscles, and no tremor of the facial muscles could be discerned despite the fact that the general expression was rather suggestive of a beginning erasement of the cutaneous wrinkles and folds, a condition so often encountered as a forerunner of facial weakness in paresis.

The deep jerks of the arm and leg were a little more pronounced on the right side. There was also an absence of patellar or ankle clonus on the right side and, while the plantar reflex was sluggish when the left sole was stroked, no physiologic or pathologic toe sign could be elicited on the right side, despite numerous and repeated attempts. The abdominal and cremasteric reflexes, while preserved, appeared equally responsive but faint. There appeared to be some resistance of the hamstring muscles on attempts to elicit Kernig's sign. The Wassermann test of both blood and spinal fluid repeatedly gave negative results. The spinal fluid was clear, and showed no apparent increase of pressure, no excess of globulin, and only three cells to the cubic millimeter.

When again seen about three weeks later, the clinical picture had changed considerably. Symptoms of increased intracranial pressure, as evidenced by severe headaches, drowsiness and double choked disk, were manifest, but vomiting had not occurred except as a resultant from the morphin which had been repeatedly used to assuage the pain. There had been no convulsions for some time, but undoubted motor paralysis of the right side was shown by weakness of the right side of the tongue, lower right side of the face, and a tendency to spasticity of the right arm and leg, with absence of the abdominal and cremasteric reflexes on the corresponding side. Plantar flexion was preserved on the

left, but no frank extension of the toes could be elicited on the right side.

The diagnosis of a neoplasm involving the left motor cortex was accordingly made, and operation was recommended. I am indebted to Dr. C. W. Harned for the notes pertaining to the operation and subsequent course of the case. "A plate of bone, 6 by 10 cm., was removed over the left motor area. The dura was found to be tense but not adherent. When the dura was incised, the cerebral tissue immediately bulged into the opening owing to the increased cerebral tension. Puncture of the lateral ventricle failed to deliver any cerebral fluid. Exploration of the exposed surface with a probe revealed increased resistance about 3 cm. below the cortex over the leg and arm areas. Incision through the brain and exploration with the finger revealed a tumor mass possibly as large as a small hen's egg. The mass did not seem to be encapsulated, and hence no effort was made toward its removal. The exposed dura was removed and the wound closed with the scalp flap only. Healing was by first intention, but a hernia developed within a few days. Postoperative convalescence was uneventful. The facial paralysis disappeared and speech was improved, but there was no return of motive power to the arm or leg. At times, interest was manifested by reading a newspaper or engaging in a game of cards. A large hernia gradually developed over the operative site. May 15, 1921, twitching of the left arm and leg became evident, general convulsions associated with stupor ensued, and three days later, dissolution occurred. Necropsy revealed the presence of an infiltrating mass, a glioma, involving the posterior portion of the left front lobe, and extending posteriorly well into the parietal region, collapsing the ventricle on the affected side."

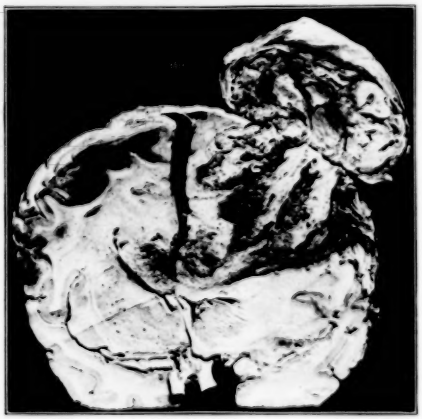

Fig. 3 (Case 2).—Vertical section through hemispheres at level of optic chiasm, showing extent of glioma involving the hemispheres; also the comparative size of the hernia of the left cerebral hemisphere.

COMPARATIVE STUDY

In the study of these two cases, one is naturally confronted by the similarity, and again by the dissimilarity, of certain symptom groups. The cardinal symptoms of increased intracranial pressure—headache, vomiting and choked disk—were latent features in both instances, doubtless owing to the fact that the neoplasms were of an infiltrating character, were slow of growth, and were situated above the tentorium cerebelli; and it was not until the ventricular current was interfered with through pressure that the general symptoms, enumerated above, became evident. In this one respect only, the latent development of general symptoms of brain tumor, are these two cases parallel, and until such symptoms did present themselves, only doubt and conjecture could be entertained as to the probable diagnosis in each instance.

A consideration of the mode of onset and an evaluation of the symptoms as they appeared in chronological order in these cases may give, perhaps, some idea as to why the element of doubt naturally crept into the making of a diagnosis. In Case 1, it will be recalled, the onset was sudden in character, the prodromal symptoms being those of an infectious process, i. e., general aches and pains, febrile movement, and gastrointestinal disturbance. Within the following forty-eight hours, nervous symptoms were ushered in, as evidenced by weakness of the left lower extremity, followed shortly by weakness of the left upper extremity. For days, no other changes than these could be found, and the possibility of a vascular lesion—embolism or thrombosis, secondary to some infectious process in the intestinal tract—was, for a time, entertained. Certainly no violence could be done the clinical picture at this stage in assuming the possibility of such a lesion affecting the terminal branches supplying the arm and leg centers in the motor zone, for the weakness of the involved extremities was so slight at first, and the progress made so slow that, in the light of the preexisting infection of an unknown origin and nature, the symptomatology could be reasonably explained on the basis of cerebral softening resulting from some vascular insult. When, about two weeks later, paralysis of the left chest muscles became evident, followed within a fortnight by weakness of the musculature of the left lower side of the face and the left side of the tongue, the presumption of a vascular lesion seemed all the more probable; and it was not until the cephalalgia, associated with vomiting and a beginning mental heaviness, assumed more than a minor rôle, that the growing suspicion of a possible neoplasm as an underlying factor loomed very large on the diagnostic horizon. With the beginning change in the fundus of the left eye, though slight at first, it is true, and the gradual, though steady, increase in the intensity of the headache and vomiting episodes, all of which were associated with a motor paralysis of the left half of the body, it did not seem that much else was needed to complete the clinical picture of a tumor involving the right motor cortex. That such was found to be the case on postmortem examination has already been pointed out. It is not unreasonable to assume, however, from a clinicoanatomic study that the slowly progressive motor paralysis was in all probability due to an interference of the circulation in some of the vessels supplying the right motor cortex, producing, as a result, an area of softening which, as far as macroscopic appearance was concerned, could not be distinguished from a softening due either to an embolism or thrombosis; and it was not until a section was made through the softened area that the underlying tumor formation was disclosed.

In Case 2, the clinical picture, presented early, was not unlike that of beginning paresis. The age of the patient, his early sexual exposure, the epileptiform seizures, the comparative rapidity of recovery, the slight muscular incoordination, slight tremor of the hands, slight inequality of the pupils, sluggish response of pupillary action to light with preserved power of

reacting in accommodation and convergence, some slurring of the speech, the rather stolid expression, and the increased resistance of the hamstring muscles on attempting to elicit Kernig's sign, all pointed strongly in the direction of paresis as a causal factor. The repeated negativeness of blood and spinal fluid examinations for syphilis, and later the development of symptoms indicating increased intracranial pressure, rapidly cleared the diagnostic field of extraneous and misleading evidence and paved the way for the making of a correct diagnosis.

Taken in their entirety and at their true face value, these cases present but little in common, especially since the tumors were of about the same size, and occupied almost a similar anatomic position with the exception, of course, that one occupied the right cerebral hemisphere, the other the left cerebral hemisphere. In the first case, a slowly developing motor paralysis resulting finally in total hemiplegia and seemingly due to a vascular lesion, was the outstanding clinical syndrome, until pressure symptoms resulting in headache, vomiting and neuroretinitis developed.

In the second case, while it is true that a complete hemiplegia eventually developed, the motor paralysis was preceded by epileptiform seizures; and in the absence of positive serologic findings, nothing positive in the way of diagnosis, save an irritative lesion of the motor cortex, could be ventured until, as in the former case, headache, vomiting and visual disturbance became the order of the day.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. CRAFTS AND THROCKMORTON

DR. GEORGE A. MOLEEN, Denver: Referring to Dr. Crafts' paper, the first question appears to me to concern the relationship between trauma and tumors of this character, the second concerns the age at which they occur, and the final question, the location and character of the tumor. The report reminds me of two cases observed some time ago. A man, aged 25, received a blow on the point of the chin, and in falling his head struck the floor. He was momentarily unconscious, and two or three months later began to notice subjective sensations of smell, followed by disagreeable subjective sensations of taste. Almost at the same time there occurred blurring of the edges of the optic nerve, with considerable tortuosity of the vessels and the lowering of visual acuity without unilateral visual disturbances. The case progressed very rapidly from the standpoint of visual loss, and the swelling of the optic nerve reached 3 or 4 diopters in the course of a few weeks. The smell disturbance was replaced by anosmia and ageusia. Operation was undertaken in two stages, decompressive operation as a preliminary step being done. Careful puncture in all directions over the anteromedian aspect revealed nothing except a lessened resistance at a depth of 8 or 9 cm. However, the decompression relieved the symptoms considerably. There were no motor symptoms, and the patient was ambulatory. A second operation was performed four or five weeks later. At that time hernia of the brain was marked, and incision of the dura revealed an infiltrating soft mass, probably a round cell sarcoma, extending in all directions. The wound was closed without attempting removal of the tumor. Unfortunately, we were unable to get a necropsy. The second case was that of a child, aged 4. The nurse had allowed her to fall, her head striking the floor. In this case, the development of a tumor in the subtentorial region was rapid, with enormous hydrocephalus and the usual symptoms of tumor, including intense headache. The optic neuritis was profound. Necropsy in that case showed a very large infiltrating mass in the cerebellum. These cases, together with the one reported by Dr. Crafts, bring up the question as to whether or not injury plays a part in the development of brain tumor, especially in younger adult life and in childhood. With reference to the second paper, some years ago Spiller called attention to the importance of a slowly developing paralysis as characteristic of tumor in the absence of other symptoms.

AN EXPERIMENTAL STUDY OF URETERODUODENOSTOMY *

FRANK HINMAN, M.D.
AND
A. ELMER BELT, M.D.
SAN FRANCISCO

The conviction of the impracticability of transplantation of ureters into the upper intestinal tract, because of urinary reabsorption, has been so general that it has prevented the experimental investigation which theoretical considerations would seem to warrant. Because of freedom from infection, it is an ideal place to shunt the urine, compared to the rectum, where the possibility of peritonitis, pyelonephritis and pyonephrosis is great.

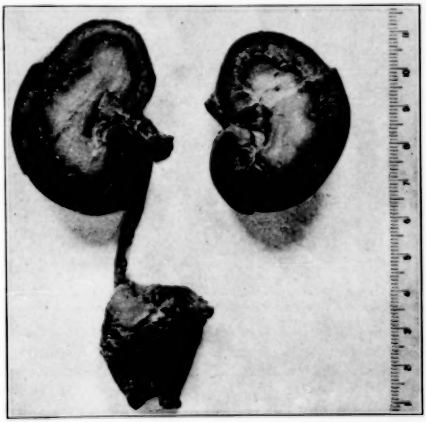

Fig. 1.—Bilateral hypertrophy, eighty-three days after unilateral ureteroduodenostomy. There is no evidence of infection on either side and no dilatation of the right pelvis or ureter. The ureteral opening is patent, and urine is pouring through it into the duodenum, as shown by its fluid contents and the high content of nitrogenous substances. The right kidney measures 5.5 by 2.7 by 2.6 cm.; the left, 5 by 2.6 by 2.7 cm., length, width and depth, respectively.

Early in 1917, we became interested in duodenal transplantation on theoretical grounds: curiosity, first, as to the manner and cause of death following bilateral ureteroduodenostomy, and, secondly, as to the reaction of renal tissue to the marked change of physiologic environment following unilateral ureteroduodenostomy.

PROCEDURE

Under ether narcosis, through a lumbar incision, with surgical asepsis, the right ureter was transplanted into the duodenum. In one group, the opposite kidney was removed, or a double ligature of its ureter, with

* From the Department of Urology and the Hooper Foundation of Medical Research, University of California Medical School.
* Read before the Section on Urology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

division between them, effected. Studies of the blood nitrogen, of the contents of the stomach and duodenum, of the stools, and of the manner of death were made. In some of these cases, with opposite nephrectomy, the effect of retransplantation of the right ureter to the skin was tested. In another group, the opposite kidney was not disturbed after right ureteroduodenostomy in order to investigate the effect of the unphysiologic manner of activity on the right kidney in experiments of short and long duration. The principal experiments are listed in Table 1.

INTESTINAL REABSORPTION

A number of experiments of bilateral ureteroduodenostomy, either at one or at different periods, and of unilateral ureteroduodenostomy with opposite nephrectomy, or complete ureteral ligation at the same or a later period, resulted, uniformly, in death of the animal in from seven to ten days. The type of death is similar to that seen in complete anuria or bilateral nephrectomy. No distinctly uremic manifestations are observed. About the third day, diarrhea appears and becomes profuse in the terminal stages, when slight tetany may occur, although usually the dog is quite stuporous. There is never nausea or vomiting, edema, convulsions or other uremic signs. In all cases in which several weeks or months were allowed to pass after transplantation on one side before the removal or transplantation of the other kidney, in order if possible for its intestinal tract to become accustomed to the urinary content, death resulted just as quickly and in a similar manner.

A study of the nonprotein and urea nitrogen curve in the foregoing experiments reveals pronounced blood nitrogen retention, as high as 485 milligrams of urea nitrogen for each hundred cubic centimeters in one dog (Animal 8, Table 1). A very high concentration of nitrogen is also found in the stools of the terminal diarrhea, and examination of the stomach and duodenal contents, which are of fluid consistency and pale yellow, revealed a high nitrogen concentration, the nonprotein nitrogen of two cases being more than 200 milligrams for each hundred cubic centimeters.

These experimental findings indicate clearly that a kidney whose ureter has been successfully transplanted into the duodenum continues to excrete urine in large amounts, but that the products of urinary excretion are so completely reabsorbed from the intestinal tract that they produce death just as quickly as if anuria had developed and in a similar manner. The experiment is a paradox of competent renal activity, with death, nevertheless, from renal insufficiency.

Proof of the functional integrity of the kidney whose ureter has been transplanted into the duodenum is furnished by the following two experiments: one, a direct study under an anesthetic of its functional capacity, and the other, the recovery of the animal, in the terminal stages of uremia, after retransplantation of the ureter from the duodenum to the skin, where the products of its activity were not reabsorbed.

The function of a kidney which has been pouring urine into the duodenum for fifty-two days was tested by direct ureteral catheterization under an anesthetic. Protocol 1 is a typical example of such an experiment. In this case, the transplant was not entirely successful. A moderate hydronephrosis was present.

TABLE 1.—RESULTS OF EXPERIMENTS WITH URETERODUODENOSTOMY

No.	Animal	Protocol	Date of Right Ureterodiodenostomy	Opposite Ureteral Ligation	Opposite Nephrectomy	Retransplantation to Skin	Death	Cause	Period of Duodenal Drainage, Days	Period from Exclusion of Opposite Kidney to Death, Days	Experiment Exemplifies
1	Cat	17- 30	2/19/17	3/ 6/17	.....	.....	3/30/17	Dysentery pneumonia	17	4	Intestinal absorption
2	Dog	19- 25	2/ 7/19	.....	9/24/19	10/ 1/19	10/ 6/19	Killed, ether	23	12	Recovery after retransplantation; compare Experiment 2
3	Dog	17-123	2/20/17	3/13/17	.....	.....	3/19/17	Killed, ether	25	6	Intestinal absorption
4	Dog	17-144	2/23/17	3/13/17	.....	.....	4/23/17	Uremia	26	10	Intestinal absorption
5	Dog	17- 92	3/ 6/17	3/27/17	.....	.....	4/ 2/17	Uremia	26	5	Intestinal absorption
6	Dog	17- 14	10/17/17	.....	11/21/17	.....	12/ 3/17	Killed, ether	47	12	Intestinal absorption
7	Dog	22- 16	1/14/22	.....	.....	.....	3/ 7/22	Killed, ether	51	..	Bilateral hypertrophy; compare Experiment 1
8	Dog	19-138	7/23/19	.....	9/18/19	.....	9/29/19	Uremia	70	11	Intestinal absorption
9	Dog	19-139	8/28/19	.....	.....	.....	11/18/19	Killed, accidentally	82	7	Bilateral hypertrophy; compare Figs. 1, 2 and 3
10	Dog	20- 90	3/24/20	.....	9/ 7/20	9/15/20	9/16/20	Uremia	175	9	Recovery after retransplantation
11	Dog	20- 89	3/24/20	.....	10/19/20	10/26/20	10/27/20	Killed, ether	209	8	Recovery after retransplantation
12	Dog	21- 38	10/28/20	.....	.....	.....	11/14/21	Acute left pyelonephritis	381	..	Late atrophy; compare Figs. 4, 5 and 6
13	Dog	21- 37	10/25/20	.....	.....	.....	1/ 7/22	Killed, ether	469	..	Late atrophy
14	Dog	21- 35	10/22/20	.....	.....	.....	1/ 7/22	Killed, ether	443	..	Late atrophy

REPORT OF EXPERIMENTS

EXPERIMENT 1.—Functional study of right and left kidney, with right ureteroduodenostomy.

Dog 1 (Animal 7, Table 1), A brown and white female mongrel, weight 21 pounds (9.5 kg.).

Nov. 29, 1921: Blood: urea nitrogen, 24 mg. per hundred cubic centimeters; nonprotein nitrogen, 47 mg. per hundred cubic centimeters.

Jan. 2, 1922: Blood: urea nitrogen, 22 mg. per hundred cubic centimeters; nonprotein nitrogen, 38 mg. per hundred cubic centimeters.

TABLE 2.—FINDINGS IN SECRETED URINE

	Ten Minute Period Following Operation			Twenty-Minute Period		
	Amount, C.c.	Total Nitrogen, Gm. in 1 C.c.	Color	Amount, C.c.	Urea Nitrogen, Gm. in 1 C.c.	Nonprotein Nitrogen, Gm. in 1 C.c.
Left kidney urine	5	0.0142	Amber	10	0.0056	0.0153
Right kidney urine (ureteroduodenostomy)	12	0.0061	Light amber	40	0.0042	0.0125

January 14: Right ureteroduodenostomy, Fowler-Coffey method. The right kidney measures: length, 4.90 cm.; width, 2.45 cm.; depth, 2.55 cm.

March 7: Blood: urea nitrogen, 16 mg. per hundred cubic centimeters; nonprotein nitrogen, 34 mg. per hundred cubic centimeters. Phenolsulphonephthalein intravenously: first fifteen min., 14 per cent.; second fifteen min., 12 per cent. The dog is in excellent condition. Given 500 c.c. of water by mouth; 100 c.c. of Locke's solution intravenously. Anesthetized with ether, the abdomen is opened in the midline and

a catheter is placed in each ureter. The anesthetic is continued while the secreted urine is collected. The resulting urine shows the following concentration and amounts given in Table 2.

Phenolsulphonephthalein: Two c.c., or 12 mg., of phenolsulphonephthalein was injected intravenously, five minutes after a cannula was placed in each ureter. The appearance

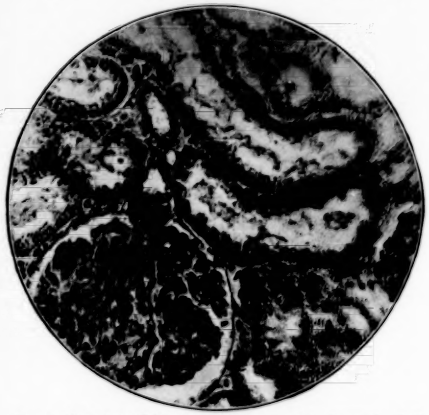

Fig. 2 (Animal 9, Table 1).—High power photomicrograph of the right kidney shown in Figure 1, whose ureter was transplanted into the duodenum, eighty-three days previously. The hypertrophy and healthy preservation of this kidney are clearly demonstrated and indistinguishable from the compensatory hypertrophy of its mate, as shown in Figure 3.

time on the left was four minutes, and on the right, six minutes. Only a faint color of phenolsulphonephthalein was visible in each twenty-minute sample of urine. The concentration was, therefore, read directly, without diluting, in a Helige colorimeter against a standard made from 2 c.c., or 12 mg., of phenolsulphonephthalein in 1,000 c.c. of slightly alkaline water. The reading on each side was 5 per cent. under these conditions. Since four times as much urine was put out on the transplanted, or right side, it may be stated that four times the amount of phenolsulphonephthalein was excreted by this side. The actual figures, when calculated, are: left kidney, 0.05 per cent., or 0.006 mg., in twenty minutes; right kidney, 0.20 per cent., or 0.024 mg., in twenty minutes. The ether anesthesia was carried to narcosis and a necropsy performed.

Necropsy (March 7): Heart and lungs normal. Abdomen: Peritoneum is of normal sheen; no abnormalities noted. Left kidney is a little large but normal in shape. Right kidney is quite large and shows definite hydronephrosis. Its ureter runs around the lower pole through a mass of loosely formed adhesions and ends in the duodenum. It is dilated. The kidney has a large pelvis, which holds about 12 c.c. The parenchyma is encroached on by the large calices to a considerable extent. Fluid can readily be forced through the ureter into the duodenum. The other organs are normal.

Kidney Measurements: Right kidney: weight 35 gm. (empty); length, 6.85 cm.; width, 3.3 cm.; depth, 3.3 cm.; pelvic cap, 12 c.c. Left kidney: weight, 32 gm.; length, 5.5 cm.; width, 2.7 cm.; depth, 3.1 cm.; pelvic cap, 3 c.c.

The functional capacity of such a kidney is shown by the other type of experiment, in which a remarkable fall in blood nitrogen occurred after transplantation of the ureter to the skin from the duodenum.

EXPERIMENT 2.—Dog 2 (Animal 2, Table 1), an adult male, large brown water spaniel. Right ureteroduodenostomy. Seventeen days later, left nephrectomy. Rise in urea nitrogen to 227 mg. for each hundred cubic centimeters in six days. Right ureter transplanted to skin. Return of urea nitrogen to normal in four days. The details are given in Table 3.

EFFECT OF URETERODUODENOSTOMY ON THE KIDNEY

The second point of interest for experimental investigation is the particular reaction of this kidney to the changed conditions of environment. Experience has taught that extensive and diverse surgical manipulation of the ureter at any part of it will not be followed by any permanent reflex effect on the kidney. Infection and stricture formation are the only dangers. If these are prevented the kidney remains in a perfectly normal state. Successful ureterostomies, ureterocystonephrostomies and nephrostomies all prove this statement. A successful ureteroduodenostomy, with absence of infection and of back pressure, should likewise influence renal activity in no way merely because of ureteral manipulation. But the physiologic environment of this kidney has been otherwise altered. Its activity is nullified by intestinal reabsorption. The work that it does, no matter how great or efficient, is of no benefit to the animal and of no help to the opposite kidney. From this point of view, unilateral ureteroduodenostomy is the same thing as unilateral nephrectomy. The remaining kidney is called on to perform total function as much in one as in the other, and it undergoes a complete compensatory hypertrophy just as quickly after ureteroduodenostomy as after nephrectomy. What will be the reaction of the transplanted kidney during this compensatory change of its fellow? It gets the same load for excretion. The blood coursing through it is the same in quality. There has been no injury or damage of its blood supply. It is also

Fig. 3 (Animal 9).—High power photomicrograph of the hypertrophic left kidney, to be compared with Figure 2.

called on to perform total function, even though this double duty is wasted because of intestinal reabsorption. As would be expected from these theoretical grounds, it is found that this kidney actually undergoes hypertrophic changes which are parallel and similar to those of its fellow, on which total function is really and wholly dependent. The animal will now have two

kidneys, each showing complete compensatory hypertrophy, the functional equivalent of four kidneys. In Table 1, Experiments 7 and 9 demonstrate this point, and in Figures 1, 2 and 3 are reproduced photographs and photomicrographs in illustration of it.

Interest in this unphysiologic state of affairs led us to question the permanence of bilateral hypertrophy after right ureteroduodenostomy, no matter how perfect the transplant of the ureter. Theoretically, one might expect a kidney uselessly to do double duty

TABLE 3.—PROTOCOL OF EXPERIMENT 2

Date, 1919	Weight in Pounds	Diet	Urine Output in C.c. per Day	Feces	Blood Urea N, Mg. per 100 C.c.	Phenolsulphonephthalein Test				Procedure	Condition	Comment
						Tract	First Hour	Second Hour	Total			
Sept. 3	36	Water only	...	.....	....	..	..	..	..	Last food at 2 p.m.	Excellent	
Sept. 4	36	Water only	...	Dark, solid, abundant	....	..	..	..	..	Urine collection begun at 2 p.m.		
Sept. 5	35	Water, 300 c.c. by stomach tube	...	Soft, dark	....	..	..	..	..	Urine collection by daily catheterization		
Sept. 6	33	Water, 300 c.c. by stomach tube	800	Soft, scant	....	Bladder	50	30	80	.....	Seems a little weak	
Sept. 7	34	Water in cage	800	None	10.0	..	..	..	..	Right ureter into duodenum at 12 noon, Fowler-Coffey method	Good recovery from ether	No abnormalities, revealed at operation
Sept. 8	....	400 c.c. milk in cage	...	None								
Sept. 9	32.5	400 c.c. water by stomach tube	...	None	....	..	..	..	..	Bladder washed; 12 noon collections begun	Lively; wound O. K.	
Sept. 10	32.4	400 c.c. water by stomach tube	300	None	10.0	..	..	..	..	Urine collection; daily catheterization	Excellent; slight local swelling in wound region	
Sept. 11	31.8	Same	500	None	16.0	..	..	..	..	Uniform collections of urine	Small hematoma rising in wound	
Sept. 12	31.5	Same	350	None	16.0	..	..	..	..	Same	Hematoma opened; drained	
Sept. 13	31.2	Same	250	None	16.0	..	..	..	..	Same	Seems weak	
Sept. 14	31.2	Same	250	Scant, black; diarrhea	19.0	..	..	..	..	Same	Quite weak	
Sept. 15	29.8	Same	400	Same	18.0	..	..	..	..	Same	Quite weak; wound O. K.	
Sept. 16	29.6	500 c.c. milk by stomach tube	450	Same	14.0	..	..	..	..	Milk given in pan in p.m.	Quite weak	
Sept. 17	29.4	500 c.c. milk by stomach tube	500	Scant, black; diarrhea	15.0	..	..	..	..	Additional milk in pan; uniform collections of urine	Much brighter	
Sept. 18	29.4	500 c.c. milk by stomach tube	500	Same	17.0	..	..	..	..	Same	Quite bright, active	
Sept. 19	29.3	Full mixed diet	...	Same	12.0	..	..	..	..	Routine cage care	Same	
Sept. 20	29.5	Same	...	Same	12.0	..	..	..	..	Same	Same	
Sept. 21	29.5	Same	...	Scant, dark, solid	....	..	..	..	..	.....	Excellent, lively	
Sept. 22	....	Same	...	Solid, dark	....	..	..	..	..	.....	Quite lively	
Sept. 23	32.3	Same	...	.....	14.5							
Sept. 24	....	Same	...	Gray, solid, scant	15.0	Bladder	23	7	30	Left nephrectomy, lumbar route; ether anest. with MS. gr. ¼	Recovery good; drowsy	
Sept. 25	30.5	Same	...	None	32.0	..	..	..	..	.....	Wound slightly edematous; drowsy but condition good	
Sept. 26	....	Same	...	None	60.0	..	..	..	..	.....	Quite bright; wound excellent	
Sept. 27	30.5	Same	...	Solid, gray-yellow, copious	112.0	..	..	..	..	.....	Even brighter than yesterday; wound O. K.	
Sept. 28	35.6	Eats heartily	...	Solid, moderate amount	135.0	..	..	..	..	.....	Well, active; wins about	Vesical tenesmus; passes a very small amount of stringy mucus
Sept. 29	34	.....	...	Soft, yellow	....	..	..	..	..	.....	Weak	
Sept. 30	33.7	.....	...	Very fluid, yellow; diarrhea	184.0	..	..	..	..	.....	Very weak	
Oct. 1 8 a.m.	29.5	Full	Feces only	Over 100 c. c., very fluid; contains 252 mg. Urea N per 100 C.c.	227.0	..	..	..	..	Very weak, catatonic; 250 c.c. physiologic sodium chlorid solution subcutaneously; 9 a.m., ureter of right kidney brought from duodenum to skin of back		
10 a.m.	....	.....	100 c.c. in 6 hrs.	75 c.c. urine per ½ hr. is aver. output from 9 a.m. to 3 p.m.	190.0							
11:30 a.m.		.....	...	.....	158.0							
12:30 to 2:30 p.m.	....	.....	...	.....	....	Ureter (Appearance time: 20 minutes)	7%	14%	21%	.....	Brighter	
3 to 4:15 p.m.	....	.....	100 c.c.	.....	122.0							
Oct. 2 8 a.m.	25	Drinks a great deal of water and milk	700 c.c. urine since 4:15, 10/1	None	48.0	..	..	..	..	Glass cannula fastened into ureter	Good, though thoroughly wet with urine	
Oct. 3	27	Bread and milk	...	None	31.0	..	..	..	..	Cannula removed	Good, though wet and shivery	
Oct. 4	29	Bread and milk; good appetite	...	None	14.5	..	..	..	..	.....	Good; very wet	
Oct. 5	29	Bread and milk; poor appetite	...	None	17.0	..	..	..	..	Ureter patent; urine flows freely	Skin infection at transplant site	
Oct. 6	24	From 30 to 50	From 30 to 50 c.c. per hour	None	18.6	Ureter	12%	7%	19%	Killed; ether anesthesia	Good, but thoroughly wet with urine	

indefinitely if one presupposes that all injury from infection or back pressure is absent. On this presumption, examination after many years should reveal two perfectly healthy and equally hypertrophic kidneys. But the factors behind renal activity on the one hand and renal inhibition on the other are too poorly understood to permit a safe foundation in theory. In practice, it is found that the hypertrophy on the transplanted side is not permanent. Death of the animals, from one to two years after right ureteroduodenostomy, reveals that the right kidney has undergone marked or almost complete atrophy. Experiments 12, 13 and 14 in Table 1 are examples of late renal atrophy of an earlier compensatory hypertrophy following right ureteroduodenostomy, and in Figures 4, 5, 6 and 7 are reproduced photographs in illustration. That this atrophy is not secondary to back pressure from ureteral constriction is shown by its total dissimilarity to hydronephrotic atrophy, by the proved patency of the ureteral opening into the duodenum and by the complete absence of ureteral dilatation. That a ureter may shrink to its normal size after dilatation cannot be used in explanation, in view of the repeated observation that a hydro-ureter is never so completely repaired. That this late atrophy is not primarily the result of infection is shown by the absence of evidence of infection in the stage of compensatory hypertrophy, from two to four months after ureteroduodenostomy; but in the late stage of atrophy, from one to two years after ureteroduodenostomy microscopic evidence of an ascending type of infection is present in two of the experiments, but absent in one, and this one shows the least degree of atrophy.

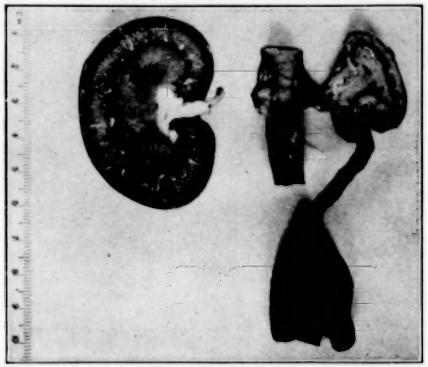

Figure 4 (Animal 13).—Sagittal section, showing late atrophy, 409 days after right ureteroduodenostomy. The right kidney, even in the gross, does not appear hydronephrotic and is just as dissimilar to a pyonephrotic kidney. There are shrinkage and marked uniform atrophy of the cortex and medulla, with remarkable preservation of kidney shape. Both kidneys have been injected with barium sulphate for roentgenology, illustrations of which are shown in Figure 5. The ureter is slightly dilated, but the opening into the duodenum is freely patent.

COMMENT

The foregoing experimental work may be commented on more fully under three headings: its relation to what has been done by others in a similar way; the question of intestinal reabsorption, and, lastly, a consideration of the changes of early hypertrophy and late atrophy.

Relatively few references to implantation of ureters into the small intestine exist, when compared with the large number of reports of clinical and experimental studies of transplantation into the sigmoid and rectum. In 1909, Steinke [1] experimentally tested intestinal reabsorption from the small intestine, emphasizing its preference because of fewer bacteria and less internal pressure. In thirteen bilateral implantations and one unilateral implantation after nephrectomy the dogs all died in from one to twenty-three days. Peritonitis is given as the cause of death in seven; stenosis of the ureter, with hydronephrosis, in two; nephritis in one; uremia in one, and cause unknown in two. With one exception, all dogs died in less than twelve days, the average being five days. One dog lived twenty-three days after bilateral implantation into the duodenum, a striking exception to our own experience, and from what we can learn, to that of others.

Sweet and Stewart,[2] in their study of ascending infection of the kidneys transplanted ureters through the pancreatic duct, with no subsequent evidence of ascending infection. Baird, Scott and Spencer [3] examined the possibility of transplanting both ureters into the duodenum without death of the animal. They performed implantation by drawing the right ureter through one of the pancreatic ducts with traction sutures, which were then tied on opposite sides of the intestine. Ascending infections did not occur. From four to six weeks later, the left kidney was removed. In all cases, the right kidney appeared normal at this time, but within forty-eight hours came nausea, vomiting, gradual loss of appetite and emaciation. The dog would lie on his side and gradually become dull and stuporous, and finally die in from seven to twelve days. Necropsy on these dogs revealed no gross pathologic lesions to account for their death. The ureter was patent and pouring its output into the duodenum. That the right kidney was still active after duodenal transplantation of several weeks was proved by suprapubically exposing both ureters under an

Fig. 5.—Right (small) and left (large) kidneys of the dog shown in Figure 4, cut sagitally after arterial injection with barium sulphate. The shrinkage of the arterial system corresponds to that of the parenchyma, both of which are pronounced on the right side. The left shows marked vascularization and hypertrophy. The right kidney weighed 5.4 gm.; the left, 39 gm. Measurement of the left was: 5.6 by 2.9 by 2.9 cm.; of the right, 2.7 by 1.28 by 1.4 cm., length, width and depth, respectively.

1. Steinke, C. R.: Transplantation of the Ureters into the Gastro-Intestinal Tract, Univ. Pennsylvania M. Bull. **8**: 22, 1909.
2. Sweet, J. E., and Stewart, L. F.: The Ascending Infection of the Kidneys, Surg., Gynec. & Obst. **18**: 460-469 (April) 1914.
3. Baird, J. S.; Scott, R. S., and Spencer, R. D.: Studies on the Transplantation of the Ureter into the Intestines, Surg., Gynec. & Obst. **24**: 482 (April) 1917.

anesthetic and placing catheters in each. In one experiment, during the next forty-five minutes, the right kidney excreted 15 c.c. and the left 20 c.c. The sodium chlorid and nitrogen content of the two specimens was equal. Phenolsulphonephthalein appeared in one minute and twenty seconds earlier from the left kidney, but the amount present in the two specimens was the same. They concluded that the urinary output cannot be poured into the upper intestine without death resulting, but with this rather indefinite explanation: "It seems safe to conclude that the substances in the urine which, when retained, give symptoms of nephritis can be absorbed from the intestines. Whatever this toxic substance in nephritis may be, it seems of considerable interest to note that it can be taken into the blood from the intestinal tract, unchanged in its passage through the intestinal mucosa." Our experimental findings differ from these only in our failure to observe nausea and vomiting in any of our dogs, and the observation of a severe terminal diarrhea in all.

The idea of Baird, Scott and Spencer, of some sort of uremic intoxication, suggests two possibilities as the cause of death after bilateral ureteroduodenostomy, or unilateral with opposite nephrectomy: either an intoxication by disturbance of kidney function, or reabsorption of the urinary constituents without such disturbance. Kingo Goto's [4] investigations of this particular problem of retention versus absorption led him to favor the former and to attribute death of these animals to renal insufficiency. Removal of the left kidney subsequent to transplantation of the right ureter into the duodenum, he believes, results in a renal insufficiency and retention. Nonprotein and urea nitrogen in the blood steadily increase and the carbon dioxid content diminishes to the level of a moderate acidosis. No ketones were found. The dogs die in from five to ten days after the nephrectomy, under conditions of suspended renal activity, deep respiration and unconsciousness.

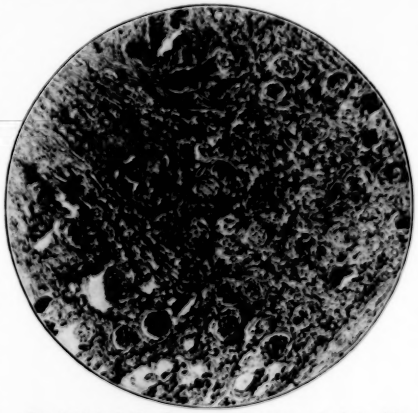

Fig. 6 (Animal 13).—Low power photomicrograph of the right atrophic kidney, showing marked fibrosis and hyaline degeneration of glomeruli. Tubular system replaced by fibrous strands. Gives the appearance of a chronic fibrosis of chronic interstitial nephritis. Very little evidence of leukocytic infiltration.

We can see only one possible interpretation of the experimental findings after unilateral ureteroduodenostomy with opposite nephrectomy or after bilateral ureteroduodenostomy. The kidney does not cease to function but becomes progressively more active as its normal stimuli pile up in the blood. A retention of 485 mg. of urea nitrogen for each hundred cubic centimeters within a few days is enormous and unequaled by other observers. That this retention is not due to cessation of renal activity is proved by accumulation of nitrogenous substances in the gastric and duodenal contents and their high concentration in the stools of the terminal diarrhea, by the hypertrophic but otherwise normal appearance, on histologic study, of the renal tissue, and by the functional activity of this tissue on direct testing under an anesthetic, or, on giving it an opportunity to be of service to the animal by retransplantation of its ureter to the skin, when there is a remarkable return of blood nitrogen to normal, a profuse and enormous excretion of urine and an unbelievable recovery of the animal from its uremic condition. The one possible explanation of these facts is reabsorption from the intestinal tract of the products of urinary excretion.

Further proof of the absence of renal intoxication or injury as a result of intestinal reabsorption is furnished by the continued activity and perfect condition of the opposite kidney even for as long as 436 days after unilateral ureteroduodenostomy. Any abnormal or toxic substance of a nephritic tendency, originating through intestinal absorption, would certainly affect this kidney. The early reparatory changes of the kidney whose ureter opens into the duodenum is also difficult to reconcile with a factor of intoxication or injury. An explanation of the hypertrophic and atrophic changes of renal tissue after ureteroduodenostomy closely touches some of the fundamental principles of renal pathology.[5] Increased function of an organ or part of an organ can only be caused by an increase of such stimuli as cause its specific activity (Nothnagel). Nephrectomy, for example, doubles the stimuli to the remaining kidney. This increase in activity produces reparatory changes characterized by hypertrophy, and this growth of one kidney following removal of its fellow has been long recognized as a compensatory hypertrophy. Placing one ureter in the duodenum, the opposite kidney being normal and undisturbed, likewise doubles the stimuli to this opposite and normal kidney, which responds in the regular course of time, from twenty-five to thirty days, by reparatory growth and undergoes a complete compensatory hypertrophy. During this period of compensation, the kidney whose ureter has been transplanted also receives in the blood an equally double stimulation, and it is not surprising that it grows in a manner equal and parallel to that of the compensatory kidney, which it does in some cases so well that it is not possible to distinguish, either in the gross or after microscopic study, any difference between the two hypertrophic kidneys.

With no change of the foregoing conditions, double stimulation being carried in the blood continuously to both kidneys, one might expect the bilateral hypertrophy to persist. In the experiments extending over a long period, however, the kidney essential to function remains hypertrophic and active, whereas the kidney

4. Goto, Kingo: A Study of Nitrogen Metabolism and of Acidosis After Transplantation of a Ureter into the Duodenum of Dogs, J. Exper. Med. 27:449 (April) 1918.

5. For a more detailed discussion, the reader is referred to a consideration of these changes under the subject of "Renal Counterbalance," by one of us (F. H.) (unpublished).

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which is nonessential to total function, in spite of an apparently equal stimulation throughout the whole period, and in spite of the fact that it had earlier developed an equally marked hypertrophy, undergoes a marked or even complete atrophy. We find no reference in the literature to an atrophy of this nature. A detailed discussion of it is given in the article on renal counterbalance.

CONCLUSIONS

1. It is possible successfully to transplant a ureter into the duodenum with little if any evidence, subsequently, of infection or of back pressure, even for as long a period as 440 days.

2. After a surgically successful ureteroduodenostomy, the kidney continues for some time to function and to excrete urine into the duodenum.

3. When the total urinary excretion is poured into the duodenum, as after unilateral ureteroduodenostomy and opposite nephrectomy or bilateral ureteroduodenostomy, the animal dies within twelve days, with marked retention of nitrogenous substances in the blood, and symptoms identical with those following bilateral nephrectomy, except for a severe diarrhea in the terminal stages.

4. Recovery of an animal so treated, even on the eighth or ninth day, follows ureteral transplantation from the duodenum to the skin. Uremic and other symptoms rapidly disappear, with pronounced diuresis and the return of blood nitrogen to a normal level.

5. These facts indicate that most, if not all, of the constituents of the urine are readily reabsorbed from the intestines after successful ureteroduodenostomy.

6. Successful unilateral ureteroduodenostomy without disturbance of the opposite kidney doubles the work of this kidney as effectively as nephrectomy, and the opposite kidney undergoes compensatory hypertrophy just as quickly and completely as it does after nephrectomy.

7. The kidney whose ureter has been successfully transplanted to the duodenum, as it also gets double stimulation in the blood, undergoes reparatory changes in every way similar and parallel to those of its compensatory mate, and the anomalous condition of a bilateral hypertrophy will persist for several months.

8. Eventually, in the course of from one to two years, after successful unilateral ureteroduodenostomy, the kidney pouring the products of its activity into the duodenum is found to have undergone marked, if not complete, atrophy, while its mate remains healthy and hypertrophic and continues to perform total function efficiently.

ABSTRACT OF DISCUSSION

DR. A. B. CECIL, Los Angeles: I should like to speak of absorption of the urine from the colon. Some years ago we encountered a very unusual condition which I previously reported. A woman had had an ovarian cyst removed, and at that time the ureter was torn, likewise the intestine, and an anastomosis between the two resulted. For about eighteen years, urine was passed into the colon. When first seen by me the patient had had retinal hemorrhages; her blood pressure was 240, and there was marked retention of urea in the blood. She suffered continually with very severe headaches. Cystoscopic examination disclosed that the left ureteral orifice showed peristaltic motion, but no whirl of urine was noted in the medium. A phenolsulphonephthalein test was performed; the drug was found in the stool, and the total amount obtained from the urinary tract came from the right kidney. A left nephrectomy was done, with the result that the entire clinical picture cleared up. This case brought up the important question as to whether the transplantation of the ureter into the bowel might not result in absorption of the urine with toxic effects closely resembling nephritis. As was stated when I published the article, the possibility of toxic effects from the infected left kidney was thought of. It would be interesting to know as to whether the series of cases reported by Dr. Judd show retentions of urea in the blood.

DR. HERMON BUMPUS, JR., Rochester, Minn.: Dr. A. R. Knauf of the Mayo Foundation has recently reported a series of five cases in which the ureters had been transplanted to the sigmoid because of atrophy of the bladder. In these patients the urea content of the blood was usually above normal, but never exceeded 100 mg. for each hundred cubic centimeters. This increase he believed to be the result of a mild pyelonephritis which was demonstrated in all of the cases either by pyelography or by catheterized specimens from the ureters. None of the patients presented subjective symptoms of urinary infection, all being in good health from nine months to twelve years since operation.

DR. A. I. FOLSOM, Dallas, Texas: In a case of exstrophy of the bladder I did a bilateral transplantation of the ureters, according to the Coffey technic. After the second transplantation, the man recovered. Since then he has passed through an attack of pneumonia, and while I have not heard from him recently, after that attack he had regained his normal health. With that impetus to my interest I did some experimental work. I began on nineteen dogs, transplanting the ureter according to the Coffey technic, and I had a primary mortality of one dog. We carried the blood chemistry along to see whether we could determine whether there was an actual absorption. There was only a very slight degree in eight dogs with one ureter transplanted at a time. I do not feel that that is a fair amount of observation to base any definite conclusions on. Four of the remaining eighteen dogs sickened and died, and various changes had occurred in the transplanted kidneys. The remaining dogs have remained well for from four to seven months. The question of absorption is a big problem. In his case Dr. Cecil would not be justified in concluding that it was simply a reabsorption. The toxic element would have to be considered. I believe that the direct transplantation of the ureter into the bowel, if a successful operation, is not so much to prevent the regurgitation of the bowel contents up the ureter as to maintain a patent ureter, for our findings indicated to me that the obstruction to the onward flow of the urine was probably the principal factor in the pathologic condition which we found in these ureters. So I believe the future problem lies in perfecting a method which will allow the ureter to maintain a patency about the scar. I have since operated on six dogs, trying to do the Maydl transplantation, and so far have had only one dog live. We have not done the blood tests in these cases, their condition being so serious. Three of them died from peritonitis, and we felt that the absorption would not be of any value. We transplanted the ureter into the upper rectum or lower sigmoid, and did the ordinary 1½ inch transplantation. I have done none in the higher areas of the bowel.

DR. A. E. BELT, San Francisco: I agree thoroughly with Dr. Folsom that it is possible that the case reported by Dr. Cecil was due to other factors than absorption. I read Dr. Cecil's paper very carefully, and in it he mentioned that the patient showed edema during the time in which she presented symptoms of renal injury. It is worthy of note that with the absorption of urinary constituents from the intestinal canal, edema is not a notable symptom. These patients present what is called the asthenic type of uremia. This was observed by workers many years ago, and I believe that Dr. Rowntree restored it to a certain extent when he spoke of the type of urinary constituents secreted by the salivary glands. This was an observation made by Morgani in 1879. Therefore, I do not believe that it was due to absorption from the colon in Dr. Cecil's case. While the ureter is ligated in the intestine, it is possible that only a slight portion goes into the sigmoid and colon, ascending or descending. The big danger lies in the shutting off of the transplanted portion. The lumen does not remain open, and any one who has tried it will tell you so. We have worked on a

lot of dogs, and in most of them we had a hydronephrosis. In the dogs in which we did not get a hydronephrosis I reoperated. We have cases in which one can see that the ureter is not a hydro-ureter. In all of them it was easy to inject saline solution into the duodenum. In the rectal drip method, the colloids are not reabsorbed but the crystalloids are.

MENINGITIS OF OTITIC ORIGIN*

A STATISTICAL STUDY BASED ON SIXTY-THREE CASES WHICH WERE OBSERVED AT COOK COUNTY HOSPITAL DURING THE DECADE FROM 1911 TO 1920, INCLUSIVE

C. F. YERGER, M.D.
CHICAGO

This report is the result of a careful investigation of all the case records of meningitis and of the otitic infections in which meningitis occurred as a complication, in order to determine the number of cases of meningitis of otitic origin that were observed in ten years, from 1911 to 1920, inclusive, at Cook County Hospital.

From a study of these cases, I was able to compile the records of sixty-three cases of otitic meningitis which include (1) all of the cases in which the diagnosis of suppurative meningitis could be made, based on the clinical symptomatology and laboratory findings, in which purulent middle ear disease or some of its complications were present and no other cause for the meningitis could be found, and (2) the cases which came to necropsy which showed diffuse purulent leptomeningitis, in association with middle ear suppuration or its complications.

We must always bear in mind that a person with an otitic suppuration may have a meningitis that has no etiologic relationship to the otitic disease, e. g., an epidemic, syphilitic or tuberculous meningitis.

Also, a person with active syphilis or tuberculosis can have suppurative middle ear disease or some of its complications which may produce an otitic meningitis.

The total number of cases of all kinds admitted into the hospital during the ten years amounted approximately to 290,000. The suppurative middle ear cases numbered 1,254, of which sixty-three patients, or 5 per cent., developed a meningitis. The total number of meningitis cases of all types numbered 1,188, of which I was able to classify as otitic meningitis sixty-three cases, or 5 per cent. In other words, five out of every hundred cases of meningitis due to all causes and observed in a large general hospital were of otitic origin. Fourteen of the 1,188 cases of meningitis from all causes, or a little over 1 per cent.,[1] were due to accessory nasal sinus disease. That is to say, 5 per cent. of the cases of meningitis due to all causes were of otitic origin, and 1 per cent. were of nasal origin, or 6 per cent. of the cases of meningitis were either otogenic or rhinogenic.

Based on the improved hospital classification that was in operation from 1916 to 1920, the percentage of the various types of meningitis was: (*a*) syphilitic, 6 per cent.; (*b*) tuberculous, 25 per cent.; (*c*) epidemic cerebrospinal, 48 per cent.; (*d*) other infectious types and those of undetermined origin, 20 per cent.

Of the sixty-three cases of otitic meningitis, 100 per cent. presented associated suppurative middle ear disease; in 90 per cent., or fifty-seven cases, the purulent otitis media was diagnosed clinically, and in 10 per cent., or six cases, it was discovered at necropsy. It was very difficult in some of the cases to make the distinction between the acute and chronic types. I classified thirty-three cases, or 58 per cent., as acute, and twenty-two cases, or 38 per cent., as chronic. The otitis media was bilateral in seven cases, or 12 per cent. Mastoiditis was associated in thirty-five cases, or 55 per cent., of which twenty cases, or 57 per cent., were acute, and fifteen cases, or 42 per cent., were chronic.

Necropsies were performed in twenty-nine cases, or 46 per cent. Purulent otitis media and meningitis were found in 100 per cent. each, mastoiditis in 50 per cent., sinus thrombosis in 34 per cent., pachymeningitis, cerebral and cerebellar abscess in 13 per cent. each, perisinuous or extradural abscess, edema of the brain and accessory nasal sinus disease in 10 per cent. each.

To determine the paths of infection in otitic meningitis is sometimes very difficult or impossible at operation and even at necropsy; it is more uncertain when based on the clinical findings. In general, the path of infection may be by: (1) local extension, either by continuity or contiguity of tissue; (2) hematogenous infection, by metastasis through the vascular route, or (3) lymphogenous infection through the lymphatic channels. Berggrens,[2] in ninety cases, and Mygind,[3] in thirty-five cases, found the relative frequency of the paths of infection to be: labyrinth, 30 per cent.; sinus phlebitis, 27 per cent.; pachymeningitis (with and without brain abscess), 13 per cent.; osteitic changes of the vault, 8 per cent., and untraceable, 20 per cent.

In my series, twenty-nine cases came to necropsy; pachymeningitis, cerebral abscess and cerebellar abscess were present in 13 per cent. each; perisinuous abscess in 10 per cent., and sinus thrombosis in 34 per cent. In none of the cases was labyrinthitis diagnosed at necropsy. (In eight cases the latter diagnosis was made clinically.) Two or more of these pathologic findings were associated in eight cases, or 27 per cent.

The clinical symptoms and signs of meningitis, as found in their order of frequency, were: (1) rigidity of the neck in 80 per cent.; (2) Kernig's sign in 80 per cent.; (3) headache in 46 per cent.; (4) Brudzinski's leg sign in 43 per cent.; (5) vomiting in 27 per cent.; (6) Babinski's sign in 25 per cent.; (7) increased reflexes in 20 per cent.; (8) dilated pupils in 19 per cent.; (9) unequal pupils in 14 per cent.; (10) nystagmus in 14 per cent.; (11) chill in 12 per cent., and slow pulse in 12 per cent. The leukocyte count in the thirty-eight cases in which this was made revealed a leukocytosis varying from 9,200 to 60,000, depending on the associated pathologic conditions.

One or more lumbar punctures were made in fifty-three cases, or 84 per cent. Turbidity was found in 85 per cent., increased pressure in 51 per cent., and globulin in 34 per cent. The cell count was made in thirty-eight cases, or 71 per cent. It varied from 120 cells in a case of cerebellar abscess, meningitis, perisinuous abscess, sinus thrombosis, mastoiditis and otitis media, in which the culture of the spinal fluid was sterile, to 367,000 cells in a case in which the culture

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

1. Yerger, C. F.: Intracranial Complications of Nasal Accessory Sinus Disease, Illinois M. J. 40: 395 (Nov.) 1921.

2. Berggrens, S.: Etudes sur la méningite otogène purulente generalisée en ce qui concerne le traitement operatoire, Acta oto-laryngol., Supplement 1.

3. Mygind, Holger: The Operative Treatment of Otitic Meningitis, J. A. M. A. 55: 759 (Aug. 27) 1910.

of the spinal fluid revealed streptococci. Among the cases that came to necropsy the highest cell count was 136,000 in a case of otitis media suppurativa, mastoiditis, leptomeningitis, sinus thrombosis and internal hydrocephalus, in which the culture yielded the streptococcus. In the seven cases in which streptococci were yielded by the spinal fluid, the cell count averaged 90,614; in the five cases in which the pneumococci were found on culture, the cell count averaged 4,774 cells. The cells showed an increase in the polymorphonuclear percentage in 43 per cent. Smears made from the spinal fluid were positive for micro-organisms in twenty-nine cases, or 54 per cent. Cultures were positive in fourteen cases, or 26 per cent., of which eight, or 57 per cent., showed streptococci, and six, or 43 per cent., showed pneumococci. Cultures were made in but twenty-five cases, of which fourteen, or 56 per cent., were positive, and eleven, or 44 per cent., were negative. In only eleven of the cases seen at necropsy, cultures had been made, in seven of which they were negative and in four, positive. In all of the eleven cases, suppurative meningitis was found at necropsy. This agrees with Mygind's experience, who found extensive meningitis at necropsy, and yet could find no organisms in the spinal fluid during life. Mygind [4] reports twenty-four sterile spinal fluids out of sixty-one clinical cases of meningitis. In twelve of the cases, the presence of meningitis was confirmed by necropsy.

Meningitis cases in which the patients have recovered should not be classified as diffuse purulent leptomeningitis, regardless of the amount of the cell count of the spinal fluid, unless bacteria are found on culture; and even then we cannot be absolutely certain of the absence of an accidental contamination, unless the culture report is confirmed by a subsequent lumbar puncture and culture of the spinal fluid.

How are we going to classify the larger group of cases of meningitis in which we have not yet found bacteria in the spinal fluid, but in which we have the classical symptoms of meningitis, together with a turbid, sterile spinal fluid? Some authors, as Sharpe,[5] classify these cases as serous meningitis, or, as Plaut and Schottmüller, as sympathetic meningitis. Eagleton [6] classifies these cases as protective meningitis. It is best that we should not have too many names for the same condition, as it only adds confusion and complicates matters. For this reason I have chosen the term sympathetic meningitis to signify this condition, in this paper.

Meningitis sympathetica, so named by Plaut and Schottmüller,[7] is characterized by a cloudy spinal fluid which is sterile. There is increased pressure of the fluid, increased cells (usually polymorphonuclears), increased albumin and globulin, and a reduction to Fehling's solution. The associated meningitic symptoms may be from the mild to the severest type. The cause of this type of meningitis is a meningeal irritation, usually an adjacent focus of infection, usually ear or nose. The majority of cases recorded as recoveries from suppurative meningitis probably are of this type. It is also true that sympathetic meningitis may be the precursor of diffuse purulent leptomeningitis. It is possible that the bacteria may have been present in the spinal fluid and were destroyed or lie in the meninges. This may be the explanation as to why we find suppurative meningitis at necropsy, and yet find a sterile spinal fluid during life.

This clinical classification, which is based on the presence or absence of micro-organisms in the spinal fluid, can be applied to only twenty-five out of the sixty-three cases, as follows: Positive cultural reports were obtained in fourteen cases, and negative reports in eleven; that is, fourteen cases were of suppurative type, while eleven cases should be classified as sympathetic meningitis.

REPORT OF CASES IN WHICH PATIENTS RECOVERED

Of the sixty-three patients, only two recovered, a mortality of 97 per cent. A brief report of these two cases is of interest.

CASE 1.—*Streptococcic otitic meningitis, suppurative otitis media and mastoiditis.* A nurse, aged 40, admitted to the hospital in the service of Dr. Jacques Holinger, Feb. 16, 1920, had had an acute suppurative otitis media of ten days' duration following measles. Examination revealed a profuse purulent discharge from the right middle ear, and marked bulging of the posterosuperior quadrant of the drum, with pain over the right frontal and parietal regions and an irregular temperature varying from 99 to 104 F. Two days later a slight ptosis of the right upper lid and a very slight paresis of the right side of the face were noted. At no time was there any tenderness over the mastoid. On admission, the temperature was 101.6, the pulse, 96, and respiration, 22. The mentality was clear; there was slight paresis of the right levator palpebrae superioris, slight impairment of the muscle tonus of the right side of the face, and no rigidity or retraction of the neck. The reflexes were normal. There was a purulent discharge from the right ear from a perforation in the posterior inferior quadrant. There was a slight swelling over and in front of the tip of the mastoid, extending downward for 2 or 3 inches. A simple mastoidectomy was performed by Dr. Holinger on the day of admittance. There were numerous mastoid cells containing pus under pressure. In the tip of the mastoid, discolored bone, with many small cells containing granulations and pus, were found. The sinus was exposed on the level with the upper margin of the external meatus and followed down to the tip of the mastoid, where it lay directly below these discolored dark parts of bone. When the bone was broken away, a profuse hemorrhage occurred from the sinus, which was controlled by gauze packing. Next day, the ptosis and facial involvement were entirely gone. After forty-eight hours, the gauze packing was removed from the sinus. On the third and fourth days, the temperature was over 104. A week after the operation, the patient complained of severe pains in the legs, with hyperesthesia. Rigidity of the neck and a marked Kernig's sign were present. Spinal puncture gave a count of 110 cells. A smear revealed numerous short chained streptococci, and cultures revealed streptococci.

The second operation was now performed by Dr. Holinger, February 23, seventeen days after the first. This consisted of an exploration of the cranial fossae. The dura of the cerebellum was exposed 1 inch posterior to the lateral sinus, and an incision was made in the dura, which did not pulsate. A slightly pinkish colored cerebrospinal fluid was discharged under slight pressure. The dura of the temporal lobe was exposed. It did not pulsate. The sinus was punctured, and fluid blood escaped. Spasticity of the lower extremities and rigidity of the neck with retraction were observed. A week later, marked improvement in these signs occurred, the temperature became normal, and the general condition improved. The remainder of the clinical course was uneventful. The patient was discharged as recovered, March 25, one month and nine days after admittance to the hospital.

The positive culture of the spinal fluid places this case in the suppurative meningitis group. However, only one specimen of the spinal fluid was obtained for examination; consequently, it could not be checked up. It is possible that the bacterio-

4. Mygind, Holgert: Ztschr. f. Nervenh. **40**, 1910.
5. Sharpe, William: Surgical Treatment of Purulent Meningitis, M. Rec. **100**: 704 (Oct. 22) 1921.
6. Eagleton, W. P.: Operative Treatment of Suppurative Meningitis, Laryngoscope **32**: 1 (Jan.) 1922.
7. Plaut and Schottmüller: Leitfaden zur Untersuchung der Zerebrospinalflussigkeit, quoted by Strauss, I.: Meningitis Sympathetica, Am. J. M. Sc. **154**: 748 (Nov.) 1917.

logic findings may have come from accidental contamination. In the latter event, this case should be classified as sympathetic meningitis.

CASE 2.—*Chronic purulent otitis media; chronic mastoiditis; facial paralysis; labyrinthitis; meningitis.* A man, admitted, March 4, 1915, to the service of Dr. Boot, had had an acute purulent otitis media two months before. The left ear began to discharge in two or three days. Three or four weeks before he was admitted he noticed that he could not close the left eye, and his mouth moved to the right. He had had a severe headache, and noticed rigidity of the neck for the last three or four days. On entrance the temperature was 101. There was spontaneous nystagmus when the head was turned to the left, but none when turned to the right. The left ear was discharging through a perforation in the drum. There was some tenderness over the left mastoid. The patient was unable to use the left side of his face or close the left eye. There was marked rigidity and retraction of the neck. Kernig's sign was marked, Brudzinski's and Babinski's signs were absent. The spinal fluid was under increased pressure, cloudy and numbered 400 cells per cubic millimeter, Polymorphonuclears were 4 plus; globulin was positive, and no bacteria were found.

Before operation the patient did not appear to hear any tuning forks with his left ear. The Weber test lateralized to the right. The patient had a spontaneous nystagmus to the right, and lay on the right side. There was a large polyp at the bottom of the left canal. After the patient was anesthetized, his left ear was irrigated with hot water, and a horizontal nystagmus, rotatory in character, resulted to the left. A distinct papillitis was present in the left fundus.

March 6, a radical mastoid operation was performed. There was a large antral cavity filled with cholesteatoma, and a granulating area on the external semicircular canal and facial canal. Pressure on this granulating area set up a nystagmus toward the left (fistula symptom). The dura was found exposed and granulating, when the cholesteatomatous mass in the anterosuperior part of the tympanum was cleared away.

This is a case of invasion of the labyrinth by cholesteatoma by extension, i. e., there were other attacks of vertigo, probably, on which point the history is deficient. In these cases of cholesteatoma invasion, a wall of protective granulation tissue precedes the invasion, most frequently. The labyrinth in this case was not totally destroyed. The meningitis was of the sympathetic type, as witness the absence of bacteria in the spinal fluid, and the rapid recovery.

COMMENT

Given a case of meningitis, in a person with a history of chancre, or with clinical evidences of syphilis or with a positive Wassermann test, in the presence of an otitic infection, it becomes a very difficult matter to decide correctly the etiology of the meningitis in some of the cases, before the therapeutic test has been tried. An otitic meningitis can develop in a syphilitic patient who is harboring an otitic infection, with the same ease as in one who is not syphilitic; the same may be said of syphilitic meningitis; i. e., it may develop in a syphilitic person harboring an otitic infection. In this connection I will cite a case of probable syphilitic meningitis which is not included in this series:

Syphilitic meningitis and acute suppurative otitis media. A man, aged 30, admitted, Jan. 7, 1918, and discharged as cured, Feb. 6, 1918, has been well until three days before, when he noticed stiffness and pain in the neck, which later involved the arms, back and legs. This was accompanied by headache and vomiting. He was seen by his family physician, who diagnosed "pressure on the brain." He had no convulsions. At present, he complained of persistent frontal headache and stiffness of the neck. He admitted having had a chancre six years before. The temperature was 99.8; pulse, 72; respiration, 18. He was rational, but drowsy. He lay in a flexed position with his head slightly retracted. The pupils were unequal, small, and did not react to light. The neck showed marked rigidity. Kernig's sign was marked, Brudzinski's and Babinski's signs were absent. The patellar, Achilles and plantar reflexes were absent on both sides; the other reflexes were present and were normal. The ears were normal. The Wassermann test of the blood was negative, but the spinal fluid Wassermann test showed a four plus positive. The leukocyte count was 11,200. The diagnosis was cerebrospinal syphilis or tabes, with marked meningeal symptoms. The patient was placed on large doses of potassium iodid, one-half ounce (15 gm.) a day, and steadily improved. While in the hospital, he developed an acute suppurative otitis media. A paracentesis was performed, and the subsequent course was uneventful.

This case of meningitis, though complicated with an acute suppurative otitis media, responded promptly to large doses of potassium iodid. How easy it would have been to jump to the conclusion that the case was an otitic meningitis, because of the presence of an otitic suppurative disease. Each and every case should be thoroughly studied from every angle. In this case, the history and the Wassermann test gave the clue, and a speedy recovery under antisyphilitic treatment proved the case to be one of undoubted syphilitic meningitis. We must ever bear in mind that cerebral syphilis may closely imitate the clinical picture of meningitis, even to having a very turbid spinal fluid, with a very much increased cell count.

TREATMENT

What can be done to combat successfully otitic meningitis? As we are powerless to cure suppurative meningitis, in the great majority of cases, we can best attack the disease at its source; i. e., our rôle is one of prevention rather than of cure. Granting that it is possible to do this successfully, 5 per cent. of the deaths from meningitis are more or less preventable.

The presence of a sympathetic meningitis denotes the presence of some intracranial suppuration, and warrants operative exploration beyond the mastoid cells; and if a sinus thrombosis or an extradural abscess is absent, the middle and the posterior cranial fossae should be explored. The persistence of a sympathetic meningitis, when there is an otitic or nasal focus of infection, signifies that the intracranial focus has not yet been found.

In this series, an operation was performed in twenty-nine of the sixty-three cases, or 46 per cent. A simple mastoidectomy was performed in twenty-one cases, a radical mastoid operation in five cases, and cranial exploration in eight cases, one of which was a Haynes cisterna magna operation. Of the sixty-three patients, only two recovered, on the first of whom a lumbar puncture and a simple mastoid operation were performed, followed by an exploratory operation of the cranial fossa, and on the second of whom a lumbar puncture was followed by a radical mastoid operation—a mortality of 97 per cent.

A few of the patients were given antimeningococcic serum before the bacteriologic diagnosis of the meningitis was definitely established. An intraspinal injection of antimeningococcic serum should be administered in all suspicious cases of meningococcic meningitis that may be associated with an otitic infection. Indeed, the intraspinal injection of a serum independent of the specificity of the serum for the infecting microorganism has definite therapeutic value,[8] owing to a tissue reaction produced by a foreign protein. This

8. Neal, Josephine B.: Purulent Meningitis Not Caused by the Meningococcus, in Tice's Practice of Medicine **10**: 255.

reaction will result in the production in the spinal fluid of the same findings as those obtained in a sympathetic meningitis.

Lumbar punctures were used, not only for the purpose of diagnosis but also for therapeutic purposes, to relieve increased intracranial pressure. The procedure generally results in a temporary symptomatic relief.

CONCLUSIONS

1. Meningitis of otitic origin is more frequent than is generally supposed. Five per cent. of the cases of meningitis due to all causes, seen in a large general hospital, were found to be of otitic origin; 1 per cent. were of nasal origin.

2. All cases of meningitis should be carefully examined, to ascertain the presence or absence of an otogenic or rhinogenic focus of infection.

3. Diffuse suppurative leptomeningitis is a fatal complication of suppurative middle ear disease; therefore our rôle is solely one of prophylaxis; our efforts should be directed toward the prevention and early cure of suppurative middle ear disease.

4. The presence and especially the persistence of a sympathetic meningitis, when there is associated an otitic focus of infection, in the absence of sinus thrombosis, perisinuous abscess or extradural abscess, denotes the presence of some intracranial suppuration, as subdural abscess or cerebral or cerebellar abscess, and calls for an immediate operative exploration of the middle and posterior cranial fossae.

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ABSTRACT OF DISCUSSION

DR. NORVAL H. PIERCE, Chicago: The first point that strikes me is that out of this enormous number of cases only 5 per cent. are cases of meningitis ascribed to otitic origin; and balancing that, 20 per cent. are cases of meningitis of unknown or uncertain origin. I believe that, if otologists were called in more frequently as consultants in these cases of meningitis, more cases of otitic meningitis would be uncovered. This has a special bearing in fractures of the skull which end fatally from suppurative meningitis. It is my belief that in the presence of chronic suppurative otitis media and fractured skull a radical mastoid operation should be performed. That is proved by my own experience in a few cases. The routes of invasion, say the invasion of the arachnoid, give us a very definite prognostic standpoint. Either the sinus or meninges may suffer (1) local, hematogenous invasion from osteophlebitis originating in the mucosa without softening of the bone, or (2) from a softening process, as Dr. Yerger has stated, by continuity of the softening process coming in contact with the sinuses or meninges in acute cases. In this regard we should always have in mind the differentiation of acute and chronic cases. The acute cases are the cases that almost invariably terminate fatally and quickly, so operations have no effect on them at all. A vast majority of patients die quickly because we cannot get beyond this osteophlebitis when it has once gotten into the cranial cavity. In the softening process, however, it is quite different. Here we may get beyond the pathologic process and remove the cause that is producing the so-called sympathetic meningitis. The meninges may also be invaded by the labyrinth. This is not a blood vessel affair; it is the perilabyrinthine fluid, and has direct connection with the cerebrospinal fluid; when this invasion occurs in acute cases there is a rush of infectious material into the arachnoid space, and in these cases death almost invariably results from a spreading suppurative meningitis. In the chronic cases, however, we have our chance, because here it is usually the result of a cholesteatoma; and whenever a cholesteatoma invades the labyrinth there is always a protective wall preceding its advance, and if we remove the focus of infection we have a chance even in the presence of symptoms of meningitis. One more point is thus: I have never yet in my own experience seen a case of general suppurative meningitis end in recovery when one, two or three spinal punctures have shown viable micro-organisms. On the other hand, as the paper has shown, the absence of micro-organisms unfortunately does not give us the same cogent reason for believing that there is no suppurative meningitis. If viable micro-organisms are found in the cerebrospinal fluid, the prognosis as to life is most grave.

DR. JACQUES HOLINGER, Chicago: Dr. Yerger spoke about the patient I had occasion to observe in the Cook County Hospital. She was a nurse. I saw her on the third day of an acute otitis, and at that time she had meningeal symptoms —stiff neck, sleeplessness and fearful pain in the head. Next day the indications were urgent and I operated. She was a great deal better for at least a week and then she started again with violent headache and especially backache. The sleeplessness was constant. Lumbar puncture was made. The fluid was under increased pressure, was not quite clear, and showed many streptococci. The patient grew worse. The pain in the back was nearly unbearable. One Sunday afternoon, in trying to give her some relief, the intern gave her one-quarter grain of morphin every two hours without any result whatever. Toward evening I saw her again and instead of morphin I gave her 15 grains of acetylsalicylic acid. The change was prompt. She felt a great deal easier, and after the second dose, two hours later, she slept for some time. I continued this medication, and she continued to improve, and recovered. That was three years ago. I saw her two weeks ago. She was all right. There seems hardly room for doubt that this was a cured case of general cerebrospinal meningitis. Our views concerning the cerebrospinal fluid had to undergo a revision: Cerebrospinal fluid is not at all a homogeneous fluid throughout the whole cerebrospinal canal. It is a settled fact that one may find a positive Wassermann in the fluid of one part of the head and a negative Wassermann in the spinal canal. One may find turbid fluid and considerable numbers of microbes in one part of the cerebrospinal fluid, and clear fluid and no microbes in another part. These observations have been made and described over and over again; they must be accepted as proved.

DR. LOUIS K. GUGGENHEIM, St. Louis: I wish to emphasize the tremendous importance of differentiating between meningitis of otitic origin and epidemic cerebrospinal meningitis before any operation is performed. In several cases in St. Louis, acute middle ear trouble accompanied all the classical symptoms of meningitis. Fortunately, the spinal fluid was examined in each case and a diagnosis of epidemic meningitis made. The patients were not subjected to an unnecessary operation.

DR. C. F. YERGER, Chicago: There are several other types of meningitis that I did not mention. Of course, all these other types of meningitis would have to be excluded, if possible. We may have a meningitis in anterior poliomyelitis that sometimes confuses. It is well known that in general paresis we may have a spinal fluid that will correspond to the spinal fluid found in meningitis sympathetica, viz.: a sterile, cloudy fluid in which there is an absence of micro-organisms, and which gives a reaction with Fehling's solution. One point I should like to emphasize: The presence of a meningitis sympathetica is an indication that the suppurative focus around the meninges has not yet been found. For instance, if in meningitis the spinal fluid is free from micro-organisms, we must investigate the region of the dura and find whether there is any meningeal irritation from a perisinuous abscess, an extradural or a subdural abscess, or a cerebral or cerebellar abscess.

Public Health in Spain.—The present appropriation for public health in Spain is about 8,000,000 pesetas ($1,200,000). Deaths among children are 200,000 a year; tuberculosis causes 40,000 deaths, and malaria, 2,000 deaths. The diphtheria death rate, however, is not very high, being 0.13 per hundred thousand inhabitants in 1920.

DOES CANCER ARISE IN CHRONIC GASTRIC ULCER?*

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ROCHESTER, MINN.

There are two questions which have been almost constantly asked by members of the medical profession: Does cancer arise in chronic gastric ulcer? and What percentage of chronic gastric ulcers become malignant? These are unquestionably interesting and important inquiries, but their practical clinical significance has been greatly overestimated; the rather vicious discussion which has taken place in medical societies and in the literature has probably done some harm. Many physicians do not differentiate the things which are of purely scientific interest from those which are of practical importance. From a purely scientific standpoint, neither one of the questions as stated can be correctly answered. No one should state positively that cancer arises in chronic gastric ulcer until one experimentally produces chronic gastric ulcer and produces cancer in the ulcer, and then shows that all of the conditions of the experiments are comparable to the conditions which arise in human beings.

In the literature on the subject, practical surgeons and practitioners of medicine have misinterpreted published scientific facts relative to the close association of gastric ulcer and cancer, and have thought that those working on the subject had clearly demonstrated the origin of cancer in ulcer. They have confused association with origin, and hence a certain amount of chaos has arisen which has unintentionally misled the medical profession and brought about a state of uncertainty in the minds of the lay public relative to professional opinion.

If one were able to state the exact percentage of ulcers associated with cancer, or cancer associated with ulcer, from one year's experience, it would be seen to vary from year to year.

The important practical question is: Is cancer often associated with chronic gastric ulcer? From an experience of more than 1,400 gastric specimens, I can state that the association is so frequent that if I had a chronic gastric ulcer I should always consider the possibility of cancer being present, and I know of no clinical or laboratory methods by which the differential clinical diagnosis can be made. From actual experience also I know that most chronic gastric ulcerations with a diameter greater than 2.5 cm. are cancerous. I do not know whether the cancer or the ulcer was primary, but I do know that I would not temporize with the chronic gastric ulcer.

Ulcers of the stomach may be divided, for practical purposes, into five groups:

1. The simple acute peptic ulcer.
2. The chronic ulcers which are tuberculous or syphilitic.
3. The chronic ulcer, the exact etiologic factors for which are unknown.
4. The chronic ulcer in which there is a neoplastic process in the borders of the mucosa.
5. The gastric ulcer which shows carcinoma not only in the borders but also in the base.

There are no positive clinical signs, symptoms or laboratory tests by which these five groups of ulcers can always be differentiated, but it is very rare in my experience to see an acute peptic ulcer, a tuberculous ulcer or a syphilitic ulcer resected by my colleagues in surgery.

The last three groups of ulcers cannot always be differentiated clinically, or even grossly, after the ulcer has been resected. In my studies of 733 chronic gastric ulcerations, the differentiation was made in 29 per cent. only with a microscope.

Advanced carcinomas may be seen with the roentgen ray, and if the roentgenologist discovers an ulcer which he estimates to be larger than 2.5 cm. in diameter, the guess of cancer will be correct in a very high percentage of cases. It is, however, only a guess for practical purposes, but has some value.

Ulcers vary in shape and size; they may be multiple or single; one of the multiple ulcers may be simple and the others carcinomatous; they are usually confined to the pyloric end of the stomach, and are usually near the lesser curvature or posterior wall.

If one examines a large series of specimens, he will find three groups of cytologic findings in the gastric tubular glands:

1. The glands of the borders are sometimes composed of cells which have the morphology of normal gastric gland cells. The picture is certainly not that of cancer.

2. The glands of the borders of some ulcers (grossly indistinguishable from those of the first group) show the fact that the columnar cells of the normal gastric tubules are replaced by ovoid or spheroid cells which are morphologically indistinguishable from cancer cells. Such cells are intraglandular. I do not know that this is cancer, but the cytologic findings arouse suspicions that it might be a precancerous condition.

3. The glands of the borders of certain chronic gastric ulcers (grossly indistinguishable from those of the first and second groups) are identical with those of the second group plus the presence of the ovoid or spheroid cells in the stroma of the mucosa, or in the other gastric coats and sometimes in the base of the ulcer.

How to distinguish these three groups clinically I do not know, but I do know that, with our present methods, surgery and a microscopic examination offer the only means of making the differentiation in a large percentage of cases. Whether or not the members of the profession agree on the therapy to be applied to chronic gastric ulcer, it is certain that surgery offers the only means, with our present knowledge, of making the correct diagnosis, and certainly we have no medical or dietetic method of treating cancer.

CONCLUSION

It is important to make the diagnosis, and the differentiation of simple chronic gastric ulcer and early carcinomatous gastric ulcer cannot be made clinically. The important fact to be fully appreciated by the members of the medical profession and by the laity is the common association of gastric ulcer and cancer and the present impossibility of always making a clinical differentiation.

ABSTRACT OF DISCUSSION

DR. HERBERT R. BROWN, Rochester, N. Y.: I should like to ask Dr. MacCarty whether he has ever seen carcinoma develop as a primary entity without a preliminary inflammatory process. It is my impression that some European pathologist is of that feeling, but as I look over tissues I have examined I cannot recall such a case. In regard to carcinoma, it seems logical that it should develop from the periphery owing to changes in hydrogen ion composition.

* From the Mayo Clinic.
* Read before the Section on Pathology and Physiology at the Seventy-Third Annual Session of the American Medical Association, St. Louis, May, 1922.

DR. JOHN J. GILBRIDE, Philadelphia: Surgeons now know that the best treatment for gastric ulcer is the excision of the ulcer. As Dr. MacCarty says, it is difficult to make a diagnosis of a specimen when it is out and on the table. How much more difficult it is to make a diagnosis while it is in the abdomen. From the histories of cases of cancer of the stomach, experience has taught that there are practically two groups if one wishes to group them arbitrarily. In one group, the history extends over a long period. This suggests that these patients have suffered from some form of chronic irritation, which might be the beginning of malignancy. In the other group, the onset appears to be comparatively sudden. Of course, we may have hardly any early symptoms in carcinoma of the stomach as long as there is no obstruction.

DR. J. SHELTON HORSLEY, Richmond, Va.: Many persons have been hanged on circumstantial evidence which is not so strong as that presented by Dr. MacCarty for the incidence of carcinoma with gastric ulcer. I should like to ask him whether he finds the same histologic appearance with duodenal ulcer as he has shown with gastric ulcer. It seems hardly probable that in such early histologic changes as he has indicated there are any clinical symptoms of significance.

DR. PHILIP HILLKOWITZ, Denver: The question of incidence of irritation and origin of neoplasms has been taken up by pathologists just as it has by clinicians. I am glad to hear Dr. MacCarty make the statement that he does not know. We have overemphasized the causative fact of overirritation. Much radical surgery has been done, and, in my opinion, unnecessarily. A great deal of emphasis has been laid on the so-called precancerous stage, which in my opinion does not exist. I remember the time when we spoke of the pretuberculous stage. When we did not know the cause of tuberculosis we said it was due to cold. How rarely do we find carcinoma of the hand? The consequences of this and other far fetched teachings is that breasts have been removed unnecessarily, and cervices have been taken off on account of laceration. Carcinoma will develop even at the site of an amputated cervix. The conclusion that Dr. MacCarty reaches is, "If I have an ulcer of the stomach I want it taken out." You must remember that the practitioner in every community looks to what is done here. We must remember our responsibility. It is not a simple operation, and we should feel our way carefully as to our responsibility for our words. It is all right to discuss from the academic standpoint whether irritation is the cause of cancer, but in the application, the question is weighty, and involves a great deal of responsibility.

DR. WILLIAM H. STEWART, New York: Some unfortunate experience must be accountable for Dr. MacCarty's constant reference to the inability of the roentgenologist to differentiate between malignant and benign lesions of the stomach. Most conservative roentgenologists agree with the author that small, budding, penetrating ulcers are benign—at least, the roentgenologist, as well as the surgeon and the pathologist, is not able to differentiate between these benign ulcers and those which are malignant. The microscopic examination is the one and only accurate method. When these penetrating ulcers assume an unusual size, such as a diameter of 2 cm., they are usually malignant. Early annular growths of the pylorus can be recognized roentgenographically. They are especially malignant. Growths producing irregular defects in the stomach outline are easily recognized as cancer.

DR. D. J. DAVIS, Chicago: Dr. MacCarty has called attention to the fact that if these ulcers are approximately 2.5 cm. in diameter, the probabilities are that they are malignant. I wonder whether his data will permit of an analysis in actual percentage.

DR. EUGENE L. OPIE, St. Louis: My experience is in accord with the view of Dr. MacCarty that it is seldom, if ever, possible to obtain evidence that cancer has developed on an ulcer. He has emphasized the similarity between the ulceration of cancer and peptic ulcer. It seems to me not unlikely that the conditions that bring about the ulceration of cancer are very similar to those that bring about peptic ulcer. One of the essential features of peptic ulcer is its failure to heal, and with a considerable variety of injuries to the stomach peptic ulcer may occur. The gastric juice doubtless has an important part in dissolving injured tissue. With the injury caused by cancer, superficial ulceration is likely to occur. Ulceration and subseqent solution of tissue may destroy all the cancer in the center of the growth, but cancerous tissue still remains in the edges of the ulcer. These changes may explain some of the histologic characters cited as evidence of the development of cancer on a peptic ulcer.

DR. W. C. MACCARTY, Rochester, Minn.: The question of cancer developing without injury is a big question. I give you my personal opinion. I have studied the histogenesis of neoplasms, and I do not believe that any neoplasm occurs without a previous injury, not necessarily something which we can see grossly. I am speaking of chemical injury. As to the clinical history, the most extensive cancer of the stomach I ever saw gave a clinical history that could not be interpreted as cancer until a week before the patient died, and then he had obstruction of the common duct and jaundice, and we knew what he had. So the history is not always an index as to whether there is cancer. In duodenal ulcer, we did not see these cytologic changes. I do not like the word "precancerous." I rather prefer "pro," using it in the same sense as "pro" botany. Precancerous means to me everything that goes before development of cancer. I have never seen a cancer of the breast in which I could not show definitely that there was not an inflammatory condition present at the time. I wish to apologize to Dr. Stewart; I have no reflection to make on radiologists, and the best paper I have read on this subject was read before the Radiological Society. I have always hoped in dealing with the radiologists to get rid of the extremists who say they can always diagnose gallstones. Dr. Davis spoke of size and percentage of malignancy. I have not compiled any statistics. I am frequently quoted as giving a percentage. I have never yet given a percentage of gastric carcinoma. Dr. Opie asked about ulceration. The same histologic pictures are seen in cancer of the stomach as in simple ulcer of the stomach. The reaction is all the same. I do not know how we are going to settle this question whether these are ulcerated cancers or cancerous ulcers.

Clinical Notes, Suggestions, and New Instruments

CULLEN'S SIGN IN ECTOPIC PREGNANCY: A SUGGESTION FOR ITS DETERMINATION

F. H. JACKSON, M.D., HOULTON, ME.

The diagnosis of ectopic pregnancy before the onset of the tragic stage is sometimes difficult. But it is needless to point out that diagnosis made before this period will result in a much better prognosis. Cullen has called attention to the dark appearance of the umbilicus in those cases in which rupture has occurred and free blood is found in the abdominal cavity. Naturally, such a sign is simply one of the methods that enable one to come to a definite conclusion.

Busch[1] reports the case of a woman, aged 60, with an ovarian cyst the size of a child's head, that gave this sign with no intra-abdominal hemorrhage. He points out that the sign is not always evidence of intra-abdominal hemorrhage, let alone ectopic pregnancy. Such an isolated example does not make the sign of any less value, for one would hardly be confused or in a quandary as to ectopic gestation in a woman of such an age. There are many cases, however, in which the finding of the condition might clinch the determination as to whether or not the abdomen should be opened, for many times with a clinical history that is very suggestive, the findings by vaginal examination are such that one is in doubt. This is especially likely in those cases in which, with the ectopic pregnancy, we have uterine enlargement corresponding to a normal pregnancy.

The method here described was stumbled on by me in a recent case, and is given with the idea that it may be of help to others. For fear that it has been used and published before, I might say that if such is the case the notice has been missed by me. A very obese young woman had a

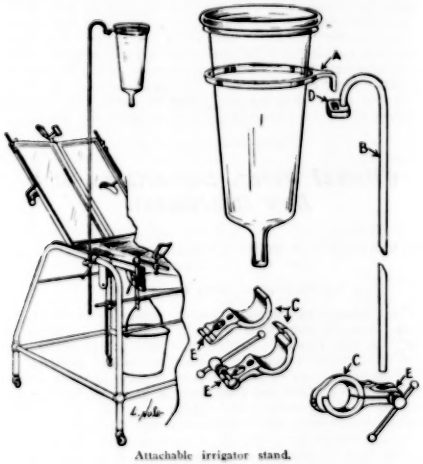
1. Zum Busch, J. P.: Cullen Sign in Diagnosis of Extra-Uterine Pregnancy, Deutsch. med. Wchnschr. **48**: 941 (July 14) 1922; abstr. J. A. M. A. **79**: 1371 (Oct. 14) 1922.

history most suggestive of ectopic gestation. She had an abdomen that was decidedly heavy, but the sign noted by Dr. Cullen was not discernible. The thought occurred that a dark room with a light directed to the umbilicus might be of help. The room was therefore made dark, and the light from one of the modern flashlights was directed on the umbilicus. The greenish-blue discoloration could then be made out. I attempted to discover the absence or presence of the sign before making the vaginal examination. Vaginal findings were such that the patient was removed to the hospital, and operation disclosed a nonruptured gravid tube, a large amount of free blood in the abdominal cavity, and an ovarian cyst on the side corresponding to the gravid tube. The cyst was the size of an orange, and was attached to the sigmoid and posterior broad ligament, with the gravid tube situated on top.

ATTACHABLE IRRIGATOR STAND

MAXIMILIAN M. NEMSER, M.D., NEW YORK
Clinical Assistant, Department of Urology, New York Post-Graduate Medical School and Hospital

One or two unusual features in connection with this apparatus would seem to warrant its complete description. The floor stand and irrigator undoubtedly have their proper place in the hospital or office; all too often, however, the practitioner finds himself cramped for space. It was with this point in mind as well as the fact that it was possible to convert an ordinary table, provided with a drain, into a cystoscopic table, that this apparatus was devised.



Attachable irrigator stand.

The stand may briefly be said to consist of three parts: (*a*) the ring; (*b*) the rod, and (*c*) the clamp.

The ring presents a rather novel feature in that it is a separate and distinct part. It is easily and quickly attached to the rod, with or without the irrigator in place. The ring is firmly held at right angles to the rod by means of a small, downward curved tongue or beak projecting from its circumference.

The rod is seven-sixteenths inch in diameter and 4½ feet long, with its upper end curved into a semicircle 2½ inches in diameter. Here, at the termination of the curved end, it is widened somewhat and provided with a slot (*D*) into which the beak of the ring fits.

The clamp here illustrated may be attached to the tubing of a metal table in a moment's time. In the manufacture of the clamp an economy of parts has been effected in that the two halves not only grip the table but also hold the rod at any desired level. This is accomplished by means of a perpendicular slit (*E*) running up and down through the two halves of the clamp. The slit abruptly widens out into a round opening through which the rod passes. Thus the traditional screw and lever hold the two halves of the clamp, as well as the rod, in place.

The fact that the ring may speedily be lifted out of and as quickly returned to the supporting rod makes it very much easier to fill the irrigator. It is not necessary to reach up to the irrigator; the irrigator can be brought down to a convenient level without the rod being lowered. Then again, it is not necessary to lift the irrigator through the ring to effect its release. It is simpler to take the ring and irrigator off together. Rapid and complete demobilization of the apparatus is obtained by this feature.

The 2½ inch curve at the top of the rod permits swinging of the irrigator toward or away from the operator or table. The clamp may be modified for wooden tables so that it may be screwed rather than fitted on. If the table is needed for other purposes, the rod may be withdrawn and laid aside.

56 East Eighty-Seventh Street.

A CASE OF CHOLERA GRAVIS WITH COMPLICATIONS

A. C. SELMON, M.D., SHANGHAI, CHINA

The patient was a Chinese woman, aged 35. In addition to being eight and one-half months' pregnant, she had also an active tuberculous lesion in one apex, with recent hemoptysis. The attack of cholera came on with malaise, mild diarrhea, noises in the ears and pains in the legs, which continued for two days. Acute cholera symptoms began during Monday night. When first seen, early Tuesday morning, she was very restless, tossing about on the bed and passing frequent and copious rice-water stools. Every few minutes she vomited material very similar to that passed in the stools, only of a darker color. There was almost complete anuria. The mind was clear, and her chief complaint was the torturing pains in the calf of the leg and the uncomfortable, dry, parched feeling inside the nose. The mouth temperature was 38.5 C. (101.5 F.). The pulse was 108 and barely palpable at the wrist. The skin was cold; the lips and fingers were livid. When a fold of skin on the back of the hand was pulled up and released, the skin stood up in a distinct ridge, owing to loss of fluid from the subcutaneous tissues. Rogers has shown that in the collapse stage of cholera from half to a third of the fluid of the blood has been lost. In the midst of a cholera epidemic no time is lost in starting a transfusion with saline solution when this sign is present.

Treatment had to be carried out in the home, since circumstances made it impossible to take the patient into the hospital. An attempt to give kaolin was unsuccessful because it aggravated the vomiting. Three liters of hypertonic saline solution was given, made up of sodium chlorid, 16 gm.; potassium chlorid, 0.8 gm.; calcium chlorid, 0.55 gm., and water, 1 liter. The temperature in the flask was kept at about 38 C. (100.4 F.). The solution was run in slowly, and there was no rigor following. During the transfusion, the patient became more quiet and the condition of the pulse improved markedly. The systolic pressure rose to 90 mm. The blood pressure was not ascertained before the transfusion was begun.

In addition to the hypertonic saline solution, the patient was given potassium permanganate, 0.13 gm., made up with kaolin and petrolatum into a pill and then coated with phenyl salicylate. One pill was given every half hour for six hours. The stools showed marked improvement following this treatment. The use of potassium permanganate has become a standard treatment in cholera hospitals here in the Orient. The cholera toxins are probably albumoses, and are rendered inert by the oxidizing power of the potassium permanganate.

Early Wednesday morning the patient gave birth to a well-developed, still-born child. No difficulty was experienced in

V. 19

the delivery, and the blood lost was negligible. Following the delivery there was some improvement in her condition for a few hours, and then quite suddenly an exacerbation of the cholera symptoms. The restlessness, the profuse rice-water stools passing involuntarily, the vomiting, the syncope and the shriveled skin were all more severe in the relapse than in the primary attack. The axillary temperature dropped to 35 C. (95 F.); the rectal temperature was 36.8 C. (98.2 F.); the systolic blood pressure dropped to 75 mm.

On account of the severe collapse, we decided to transfuse an isotonic saline solution and to inject slowly for several hours. Sterilized tap water was used in making up the solution. This was passed through the candle of a Berkefeld filter before being run into the vein. Two and five-tenths liters were run into the vein in a little more than five hours. The patient was given bits of ice to control the vomiting, and artificial heat was applied, together with hot compresses, to the lumbar region. Another course of twelve potassium permanganate pills was administered. There was prompt improvement in the stools, but amelioration of the other symptoms was not so marked as that following the first administration of saline solution. As the patient rallied, the flow of urine started again, after having ceased for almost twelve hours.

No food of any kind was allowed from the outset until twenty-four hours following the relapse. During this time she was given cold water, cracked ice, cold tea and lemonade. The first food given was strained rice-water made by boiling browned rice. Convalescence was complicated with a severe gastritis and myocarditis.

Examination of the stools revealed large numbers of the cholera vibrio. The urine passed during the attack had a heavy content of albumin.

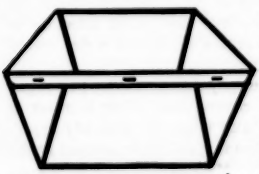
[While we have no cholera in this country, it is interesting to hear of such cases in the hands of our confrères abroad, and how they manage them.—ED.]

Edward Ezra Building.

A SIMPLE METHOD FOR THE COLLECTION OF SPECIMENS FOR THE EXAMINATION OF SUSPECTED TYPHOID CARRIERS

WALTER C. KLOTZ, M.D., JOHNSON CITY, TENN.
Medical Director, National Home for Disabled Volunteer Soldiers

When a large number of persons are to be examined as suspected typhoid or paratyphoid carriers, it is occasionally difficult to devise a satisfactory method of obtaining specimens of stools. This is especially true in the case of an institution, for example, in which a large number of food handlers are to be examined at regular intervals as a matter of routine and prevention, for the detection of carriers, in the absence of any occurrence or suspicion of enteric disease.



Cup used in Klotz method of obtaining specimens in examination of typhoid carriers.

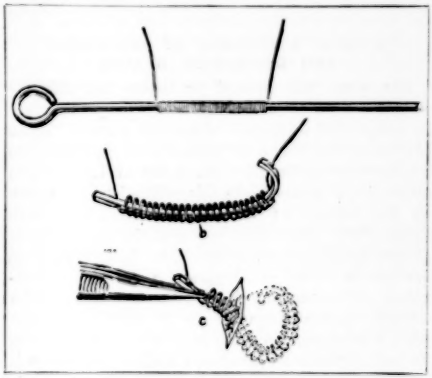
If the persons to be examined are quartered in dormitories or barracks, and are using common toilet facilities, suitable vessels for the collection of stools are not usually available. A satisfactory sterilization of toilet bowls is practically impossible. Their use for this purpose might, therefore, readily result in contamination by a carrier, leading to serious error in the findings obtained for other members of the group. To obviate this difficulty, use has been made of a large paper container, known as a "hemorrhage cup." These cups are carried and sold by some of the manufacturers of burnable paper sputum cups for tuberculosis institutions. This style of cup, which is about 6½ inches square and 3½ inches deep, is made of heavy paraffined card board and is water-proof. It has straight, flaring sides and is not provided with any flange or fold of the upper edges. Stools are evacuated directly into the paper cups, and a small thoroughly mixed portion transferred with a spatula (ordinary wooden tongue depressor) into a small tin pill-box, and labeled for laboratory investigation. The paper cup and its contents are immediately deposited in a large paper sack, and, as soon as the specimens have been collected or the paper sack is filled, it is taken to the boiler house and burned.

This method has proved so simple, satisfactory and practical that it is recommended to others for trial.

A SUPERFICIAL DRAIN

HERBERT T. WIKLE, M.D., BROOKLYN

Realizing the importance of small incisions with free drainage, particularly in infections of the face, I have been using, in preference to rubber tissue or rubber band forms of drains, a small drain made from horsehair.



Drain made from horsehair.

The horsehair may be kept in a small jar of alcohol; and, when a drain is needed, one of the horsehairs is removed from the jar and wrapped tightly and closely about a probe, as illustrated at *a* in the accompanying illustration. The portion of the probe about which the horsehair is wrapped is then passed through the flame of an alcohol lamp. This helps to sterilize and dry out the horsehair, and makes it set in the desired shape, that of a coil, as illustrated at *b*. The size of the drain depends, of course, on the diameter of the probe about which it is wrapped. The horsehair is then removed from the probe and is gradually fed into the wound with the notched probe or small forceps, as illustrated at *c*. A small rubber band may be inserted through the center of the coil, forming a cigaret drain, as illustrated at *b*. The ends of the horsehair may be drawn through small openings in the rubber band. This prevents the drain from uncoiling; but this procedure makes the drain a little more difficult to make, and is not necessary when the drain is changed daily. The black silkworm gut is a very good substitute, if the horsehair is not available.

This type of drain acts exceedingly well for twenty-four hours or thirty-six hours, after which time it begins to uncoil, and does not give very free drainage; but, if well placed in an infected area with a small incision, it remains in place better and gives freer drainage than either the rubber band or rubber tissue forms of drainage.

I have found this very satisfactory in furuncles and infections about the face, and also as a drain to place between the sutures of a wound.

43 Pierrepont Street.

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SATURDAY, DECEMBER 2, 1922

HYGEIA: A JOURNAL OF INDIVIDUAL AND COMMUNITY HEALTH

For years the medical profession has felt the need for a periodical through which the public might be enlightened in matters of medical science. At the session of the House of Delegates in St. Louis, the sentiment crystallized and the Board of Trustees was authorized to proceed with this publication. As shown by the minutes of the last session of the board (page 1936), plans have now matured sufficiently to permit definite announcement. The April, 1923, issue —ready in March—of *Hygeia: A Journal of Individual and Community Health*, the first number of a scientific medical magazine for the public, will mark what, it is hoped, will prove to be another great step in the service which the American Medical Association is rendering to the medical profession and to the people of our country.

Aside from the utilitarian aspects of the title *Hygeia* —its brevity, ease of pronunciation, simplicity and attractiveness—it is symbolic of the very foundation of medical science and preventive medicine. The name signifies the purpose of the periodical: to interpret medical science to the public; to inform the layman concerning the fundamental facts of physiology and pathology; to keep him in touch with the advance that scientific medicine is making in the prevention and alleviation of disease. By its physical form, its attractiveness, its interest and its practical value, *Hygeia* should appeal to the lay reader as a publication worthy of his attention.

It is hardly necessary to tell physicians that there are many special problems confronting the editorial staff of the new publication. Every physician has been faced with the difficulty of placing a medical subject suitably before a lay audience. The speaker or writer has to put himself in the place of those whom he would enlighten; he must speak in the language of the masses; he must interpret technical terms in words of every-day usage. For the understanding of facts in relation to disease, for comprehension of immunologic reactions, for explanations of the way in which bacteria gain entrance into the body and produce infection, for knowledge of how various drugs produce effects within the body, certain fundamental knowledge is necessary. Unfortunately, the vast majority of our public do not have it; they have no knowledge of the essentials of either the anatomy or the physiology of their own bodies. The problem, as has been said, is a difficult one; but it is hoped that, by leading from the elementary to the advanced, and by the use of chart, diagram, table and picture, *Hygeia* may be of service to every reader.

Everywhere, the Board of Trustees, the Council on Health and Public Instruction and the editorial staff have met a most enthusiastic response and are receiving offers of whole hearted cooperation. Among the contributors whose articles will appear in early issues are scientists of note who can write in the language of the intelligent layman; moreover, many lay writers whose names are household words among the American reading public have agreed to give their assistance. It now remains for the medical profession to do its share in placing this journal in the hands of the public. On their cooperation will depend largely the success of the enterprise. In this connection see advertising page 17, this issue.

BONE ATROPHY FROM DISUSE

Although the phenomena of atrophy are familiar, the nature of the changes involved is for the most part still obscure. The word atrophy is, in fact, sometimes applied to quite unlike conditions. Muscular atrophy, for example, may or may not be associated with paralysis of the contractile tissues. In the case of the muscles, simple atrophy should be distinguished from so-called degenerative atrophy. In the former there is only a quantitative diminution in size; in the latter there is in addition an actual degeneration of the muscle substance. Bradley [1] has called attention to the fact that atrophy occurs commonly under conditions of reduced blood supply.

The occurrence of atrophy due to disuse of an organ is familiar in various connections. That it arises in the case of the bones also is not so generally appreciated. In an experimental study of the subject at the Washington University Medical School, St. Louis, Allison and Brooks have found that the degree of atrophy of a bone is directly proportional to the degree of nonuse. Mechanical fixation produced as rapidly developing and as marked bone atrophy as nonuse due to section of nerves or injury to joints. A more recent clinical study of the changes in bone which result from nonuse [2] shows essentially the same sort of effects in man. There was no evidence that bone atrophy was

1. Bradley, H. C., and Taylor, J.: Studies of Autolysis, III, The Effect of Reaction on Liver Autolysis, J. Biol. Chem. **25**:261 (July) 1916.

2. Allison, Nathaniel, and Brooks, Barney: Bone Atrophy: A Clinical Study of the Changes in Bone Which Result from Nonuse, Arch. Surg. **5**:499 (Nov.) 1922.

ever the result of specific nerve influence on bone, and it is therefore unwarranted to assume that bone atrophy is ever a neurotrophic phenomenon. The initial atrophic changes due to nonuse of an extremity are the same, regardless of the age of the individuals. The ultimate result of the changes in the bones of an extremity which is not used is different in the person who has reached his complete growth from that in the person who is in his growing period at the time of beginning of nonuse. In the former instance, the process of bone atrophy is operating alone. In the latter, the process of bone atrophy is associated with the process of growth which is inhibited but not arrested by nonuse. The changes in bone which result from lack of use during adult life are such that the general shape and contour of the bone as a whole are only slightly modified. The diameter of the shaft may be very slightly decreased. The length is not changed. The medullary canal is increased in diameter, producing a corresponding diminution in the thickness of the cortex, which after a long period of nonuse is reduced to a thin bone shell. The cancellous bone becomes much more porous, with fewer and thinner trabeculae. After a long period of nonuse, the compact bone of the shaft becomes porous.

If disuse occurs during the period of adolescence, the bones may grow at a decreased rate, or growth may stop earlier in the nonused extremity. Under such conditions, permanent changes in the size and shape of the affected structures may ensue; whereas in the adult, recovery from bone atrophy is usually far more successful when suitable activity is restored. According to Allison and Brooks, bone atrophy and recovery from bone atrophy are manifestations of the function of bone cells to produce bone matrix, which is in whole or in part distinct from the function of the bone cells to regenerate themselves. Bone atrophy and recovery from bone atrophy, they add, are processes which are not necessarily associated with cell death or cell proliferation. Regeneration is a process which is directly the result of cell multiplication.

THE RÔLE OF STASIS IN INTESTINAL CONDITIONS

In the current popular discussions on "securing health through proper diet," as well as in the widespread propaganda for "saner nutrition," the part played by the intestine in promoting man's well-being or the reverse receives conspicuous reference. There can be no doubt that alimentary factors are exceedingly important in the success or failure of any regimen. The reasons for this conclusion are not so easily established; for the present it must be admitted to rest primarily on decidedly empiric observations. Attention has been centered largely, of course, on the possible disturbances caused by bacteria that inhabit the gastro-intestinal tract, sometimes in enormous numbers, from the day of birth. Their activities may undoubtedly be beneficent or baneful, as also their varieties may be numerous. The products of bacterial metabolism have been charged with a diversity of toxic actions, many times on the basis of merest conjecture. Consequently, a better understanding of the problems of intestinal bacteriology is bound to promote our knowledge of certain important factors which are often expressed as physiologic comfort or discomfort rather than in terms of violent disease or bodily disorder.

Lately the influence of diet on the nature of the intestinal flora has received wide consideration. The interest in this aspect of the subject began with Metchnikoff's engaging presentation that the body is injured by the absorption of toxic substances formed in the intestine through the agency of putrefactive bacteria. It was furthered in a somewhat more scientific way by the studies of Herter and his followers showing how a diet consisting largely of animal tissues (which means a ration rich in protein) modifies the bacterial flora of the intestine and influences the physical and psychic condition of those eating such food. As has been reported in THE JOURNAL [1] from time to time, the upshot has been to demonstrate that proteolytic micro-organisms productive of putrefaction thrive in the absence of carbohydrates and acid conditions in the bowel, whereas they are repressed by the acid-producing varieties which depend on a liberal supply of potential sources of sugar, notably dextrins and lactose.

Largely through the work of American bacteriologists, notably Kendall, Torrey, Rettger, Cannon and their co-workers, interest has been focused on the effects of changes in diet. A recent writer has summarized the prevalent view by the statement that the addition of lactose or dextrin to the diet brings about the change in the intestinal type because these carbohydrates, unlike others, are slowly absorbed and hence reach the region of maximal bacterial activity. Under these conditions it would seem that the suppression of proteolytic organisms, which grow best in a slightly alkaline medium, is due to the accumulation of acid metabolites and the consequent change in the reaction of the medium. The aciduric bacteria, on the other hand, apparently prefer a slightly acid medium, and so would find conditions for their growth more favorable.

The evidence is increasing, however, to show that diet is by no means the sole factor contributing to satisfactory alimentary conditions. According to Dragstedt, Cannon and Dragstedt [2] of the University of Chicago, either a complete obstruction or a stasis in the passage of the intestinal content results in a proteolytic flora irrespective of the character of the diet. It is probable, however, that the mechanism of bacterial

1. Diet and Intestinal Bacteria, editorial, J. A. M. A. **73**: 1844 (Dec. 13) 1919; Changing the Flora of the Intestinal Tract, ibid. **73**: 1889 (Dec. 20) 1919; Simplification of the Intestinal Flora, ibid. **77**: 626 (Aug. 20) 1921.

2. Dragstedt, L. R.; Cannon, P. R., and Dragstedt, C. A.: Factors Controlling the Intestinal Bacteria: The Effects of Acute Obstruction and Stasis on Bacterial Types, J. Infect. Dis. **31**: 209 (Sept.) 1922.

control is identical in the two cases and is dependent on the presence of utilizable carbohydrate in all parts of the small intestine and colon. In conditions of stasis or obstruction, even such carbohydrates as dextrin and lactose are probably completely absorbed in the upper part of the intestine, and so cannot affect bacterial growth lower down. It is thus easier to understand why stasis of the intestinal content is unfavorable and unwelcomed under any sort of dietary regimen. In a discussion of meat eating in America, McCollum [3] has expressed the view that disturbances of nutrition believed to be referable to excessive protein ingestion may well be due, not so much to the amount of protein eaten, as to failure to take a complete diet. Such a diet is to be secured only through the proper selection of foods which make good one another's deficiencies. It is the completeness of the diet rather than an unusual amount of some one factor that is the most important feature. Similarly, in the consideration of the bacteriology of the intestine with its possible unfavorable features, attention should not be centered solely on the type of food supplied, but should be directed, perhaps primarily, to the problem of stasis, which may counteract the advantages of a supposedly satisfactory diet.

THE TUBERCLE BACILLUS

The science of bacteriology is still too young to afford any very detailed pictures of the life history of the micro-organisms with which it deals. It is not long ago that they were usually depicted in the guise of the most baneful enemies to mankind. Thus there are accounts of "the swarms of germs present almost constantly in our noses, throats, stomachs, bowels, etc.," awaiting the chance they have been looking for—to break through the cell barrier and run riot in the body. The beneficent work of bacteria has received recognition more tardily. To the species which help rather than hinder the tasks of mankind and the higher animals, Long [4] has paid this well deserved tribute:

> Some of these are very adaptable, wonderfully equipped foragers, not overly particular, within reasonable limits, about the temperature at which they work or the form in which the great classes of foodstuffs are supplied to them. They grow in relatively large masses, many dying that others may live, and in their process of dissolution many kinds of them liberate powerful ferments which make more food available for the rest. In view of their relation to organic decay they have received the name of "saprophytes." Etymologically they are decay-growers. They live their day, grow, die and decay themselves, and by virtue of their involuntary sacrifice serve the high purpose of maintaining those great cycles of the elements in which a certain amount of carbon, nitrogen and sulphur is continually available in a mobile state suitable for the nutrition of other forms.

There are bacteria of other types which serve no such useful purpose. Some of them are extremely helpless in "the region of bounteous plenty outside." They crave a condition of parasitism in which almost inevitably they come into conflict with the body cells of the host. The modern story of immunology tells of the devices by which many marauding micro-organisms are converted from dangerous enemies into harmless guests.

For obvious reasons, the bacillus of tuberculosis has been the subject of more intensive study than have most of the other harmful bacteria. Its metabolism, the product which it elaborates, the reactions which it excites, and the modifications which it may undergo in different environments are some of the topics which have received investigation in recent years. We recall few more trenchant descriptions in the study of disease than that which Long has given of the first link in the progression of tuberculosis, the tubercle bacillus: "a wax-armored micro-organism, maintaining itself in necrotic tissue, picking and choosing its nutriment from the heterogeneous mass set before it, utilizing the glycerol of hydrolyzed fats, and probably building its wax therefrom, taking ammonia from certain of the amino-acids produced in the digestion of dead protein, utilizing others directly to speed up the process of synthesis of its own protein, autolyzing to a slight extent, sufficiently to sensitize the surrounding host to its diffusible protein products, being carried by the lymph, by phagocytes and otherwise, to new soil, there to be met by a nonspecific foreign body response, which in the end operates to produce anemia and death of the isolated cells." Then we have the failure of that dead tissue to autolyze, Long adds, perhaps because of the presence of ferment-inhibiting substances within the bacillus—the phenomenon of caseation. Finally, he concludes, there is more or less absorption of foreign protein from that focus, that of the bacillus itself and that of the disintegrating tissue, both toxic to the body protoplasm, both capable of causing fever and stimulating the metabolism of the host, so that in severe cases the typical picture of consumption ensues. Such a masterful summary would have been impossible only a few years ago, because of the meagerness of our knowledge. Today it points the way to the further investigation of prophylaxis and therapy.

3. McCollum, E. V.: The Newer Knowledge of Nutrition: New York, the Macmillan Company, 1922, p. 393.
4. Long, E. R.: The Biochemistry of Tuberculosis, Bull. Johns Hopkins Hosp. 33: 246 (July) 1922.

Differential Diagnosis of Chickenpox.—The diagnostic criteria which have proved in practice the most reliable in differentiating some 500 cases of chickenpox, mostly among adults, from among about 11,000 cases of smallpox and similar diseases, in London, during the last twenty years, are, according to Wanklyn, four in number, namely: (1) the presence or absence of marked general prostration in the early stages; (2) the relatively large number of macules, papules, vesicles or pustules concentrated in areas subjected to friction, pressure, or other irritation; (3) the relative depth of the lesions in the skin; (4) the progressive maturation of the lesions. Wanklyn adds: ". . . as any acute febrile attack, however mild, may in reality be smallpox, every such illness calls for an examination of the skin and buccal mucosa for hemorrhages, papules, pocks, or other blemish, in order to prevent the escape of a case which, however trivial in itself, may yet occasion many fatalities. — *Lancet* **203**:884 (Oct. 21) 1922.

Current Comment

THE BLOOD IN EARLY LIFE

Those who have made careful examinations of the blood in recent years, in an effort to ascertain the variations in the number of erythrocytes at different ages, agree that the content of the red cells for each cubic millimeter is much higher in the new-born than in the adult. The range from the former to the latter is represented by the difference between approximately 7,000,000 and 5,000,000. The hemoglobin content of the blood is likewise much higher in early infancy than in later life. According to Williamson,[1] the hemoglobin of the new-born infant averages 23.2 gm. of hemoglobin for each hundred cubic centimeters of blood. The hemoglobin falls rapidly, and by the end of the second month the content is 18.3 gm. At the end of the fifth month it is 13.7 gm., and then remains about constant during the next few months, falling to 12.5 gm. at the end of the first year. From this point up to the sixth year there is a steady ascent, when it approximates the height of adult life. Thus, it appears that whereas the erythrocyte count in children of 1 and 2 years of age is somewhat higher than in the adult, the hemoglobin values are exceptionally low at that period. This lack of parallelism has led Mayers[2] to raise the pertinent inquiry as to whether the low hemoglobin values are to be regarded as strictly normal or whether they might be altered by a different plan of infant feeding. The pitfalls of dietetics during the early periods of adolescence are being disclosed in various unexpected diseases of infancy, such as rickets and scurvy, among those that are charged with a deficiency etiology. May it be that the blood pigment is another heretofore little appreciated index of the degree of dietary success that attends the nutrition of the young?

INTESTINAL PARESIS IN PERITONITIS

The problem of proper procedure in cases of serious intestinal stasis was reemphasized, in 1918, by the suggestion of Alvarez[3] that it would be wise to abolish the routine purge usually given on the second or third day after certain types of operations. More recently, statistics have been presented by the same writer and his colleagues[4] at the University of California Medical School which again seriously raise the question as to the advisability of postoperative purges and enemas. They still regard it as wise in most cases to avoid the use of cathartics for as long a time after operation as possible. A rational solution of the question at issue depends fundamentally on a correct knowledge of the pathologic factors responsible for stasis in the conditions cited. A paresis of the intestine occurs not only after abdominal operations but also in various infectious diseases. It is observed in peritonitis, in which its significance has been variously interpreted. Some writers have attributed the disturbance in gastro-intestinal motility to the local changes in the enteric tract, particularly to an inflammatory condition of the tissues sufficient to interfere with their usual contractility. This is equivalent to assuming a paresis of the intestinal musculature. Others have postulated a toxic cause of the paralysis, assuming in the case of peritonitis that the bacteria present elaborate a poison which acts directly on the ganglions in the motor apparatus of the bowel. Nothnagel long ago proposed a still different explanation in the suggestion that a reflex inhibition of peristalsis is somehow produced through nervous paths. This would help to account for the speed with which marked stasis often occurs at the very beginning of an acute peritonitis. The recent studies of Arai[5] at Utrecht confirm the part played by the sympathetic nervous system in the pathology of intestinal function during peritonitis. The symptoms were induced experimentally by means of bacterial invasions in the abdominal cavity, and also by the use of chemical irritants. The latter at once exclude the participation of the supposedly effective bacterial toxins. In all cases, peristalsis could be restored by cutting the splanchnic nerves so as to interrupt an effective connection with the motor organs involved. It seems likely, therefore, that the condition of the sympathetic system demands as much, if not more, consideration in the management of the intestinal paresis of peritonitis and allied conditions as do the local changes induced in the bowel by the infectious agents. The current teachings of gastro-intestinal physiology are not out of accord with this conclusion.

SILICON IN TUBERCULOSIS

The use of silicon in therapy finds no mention in either the Handbook of Useful Drugs or New and Nonofficial Remedies, published under the auspices of the American Medical Association. It has, however, found advocacy by some German clinicians[6] in the treatment of tuberculosis; and, as might be expected, proprietary preparations of silicon[7] have promptly become available on the market. The theory on which this mode of medication is based depends on the assertion that silica is found in calcified tuberculous lesions and lung stones, and that consequently silicon as well as calcium is an important element in the formation of the beneficent scar tissue whereby the lesions are healed. Some of the proprietary products of calcium[8] are advertised as adjuvants to the therapeutic use of silicon compounds. It is true that calcified peribronchial lymph node and pulmonary lesions may contain a small proportion of silica; but Maver and Wells[9]

1. Williamson, C. S.: Influence of Age and Sex on Hemoglobin, Arch. Int. Med. **18**: 505 (Oct.) 1916.
2. Mayers, L. H.: A Study of the Erythrocyte Curve at Various Ages, and Its Relationship to Hemoglobin Curve, Arch. Int. Med. **30**: 478 (Oct.) 1922.
3. Alvarez, W. C.: Is the Purgation of Patients Before Operation Justifiable? Surg., Gynec. & Obst. **26**: 651 (June) 1918.
4. Taylor, F. B.; Terry, W. L., and Alvarez, W. C.: Improvements in Preoperative and Postoperative Care, J. A. M. A. **79**: 1578 (Nov. 4) 1922.
5. Arai, K.: Experimentelle Untersuchungen über die Magen-Darmbewegungen bei akuter Peritonitis, Arch. exper. Path. u. Pharmakol. **94**: 149 (Aug. 11) 1922.
6. Kahle: München. med. Wchnschr. **61**: 752, 1914; Beitr. z. Klin. d. Tuberk. **47**: 296, 1921. Kuhn: Therap. Monatsh. **33**: 201, 1919; München. med. Wchnschr. **67**: 253, 1920.
7. For example, Silicol, a colloidal preparation of silicic acid and protein, is advertised in German medical journals.
8. For example, Tricalcol, a "colloidal compound of calcium phosphate and protein."
9. Maver, Mary E., and Wells, H. G.: Studies on the Biochemistry and Chemotherapy of Tuberculosis. XXIII. The Chemical Composition of So-Called Tuberculous Lesions, Am. Rev. Tuberc. **6**: 649 (Oct.) 1922.

of the University of Chicago have lately demonstrated that the content is no larger than one finds in the comparable uncalcified tissues of adults. Their analytic findings, coupled with other data on record, make it highly probable that the silica is derived chiefly, if not entirely, from inhaled silicious dust. Calcified tuberculous mesenteric lymph nodes do not contain appreciable amounts of silica, and only a trace was found in a calcified tuberculous pleural exudate. Silicosis in man is no novelty; and among healthy persons exposed to silicious dust the ordinary process of inhalation often brings about deposits of silica surpassing those found in tuberculous patients. If we agree with the conclusions of the Chicago pathologists, whose analyses have failed to furnish chemical evidence to support the hypothesis that silica plays an important part in the healing of tuberculous lesions, the use of silicon preparations in therapy will require better substantiation than it now possesses. From the standpoint of patients, unwarranted therapy sometimes becomes not merely useless but even detrimental.

THE ALLEGED HABITUATION TO ARSENIC

Few chapters in toxicology are more confusing or mystifying than those dealing with the alleged instances of tolerance to poisonous substances, or the records of habituation to potent drugs. It is not easy to understand how one person can consume with impunity a dose of a toxic material that is usually fatal to others. To refer the favorable outcome to idiosyncrasy usually consists, after all, merely in clothing ignorance in "high sounding phrases." In the case of organic poisons, one can easily assume a growing capacity of the organism to destroy the harmful substance by oxidation or some other effective form of detoxication. When the problem involves fixed inorganic poisons like mercury, lead and arsenic, however, such an hypothesis no longer satisfies. It is often stated that after repeated careful administration of arsenic by mouth, the tolerance for it increases so that undoubtedly harmful or occasionally even larger than fatal doses are tolerated without detriment.[1] Not only has this been observed experimentally on animals, but remarkable stories of tolerance are commonly told of the arsenic eaters of Tyrol. Cloetta has attempted to explain the observations on animals by the hypothesis that, after the oral use of arsenic, the alimentary canal becomes more and more impervious to the poison, a consequence easily visualized in the light of the irritating action which the substance is known to have on the intestinal mucosa. At any rate, the habituation certainly is not systemic, for in all the instances carefully studied even the most tolerant individuals readily succumbed to small doses introduced subcutaneously. The facts in regard to habituation to arsenic will require a new interpretation before the criticisms of Schwartze[2] of the federal Bureau of Chemistry. His experiments on various species show that the toxicity of different preparations of arsenous oxid administered undissolved by mouth varies markedly, according to the coarseness or fineness of their subdivision. The finer the particles of a preparation, the more potent it is, and vice versa. In view of such findings, as Schwartze points out, the mere consumption with impunity of large doses of undissolved arsenous oxid is not proof that habituation exists. The toleration of such large doses may be due not to any attribute inherent in the consumer (i. e., an immunity), but to an attribute inherent in the preparation of the arsenous oxid consumed, namely, its relatively slow solubility, which has been further decreased because of its coarse state of subdivision. At any rate, the traditional doctrine of ready habituation to arsenic has been severely shattered by these studies.

1. Meyer, H. H., and Gottlieb, R.: Die experimentelle Pharmakologie, Vienna, 1921, p. 468.
2. Schwartze, E. W.: The So-Called Habituation to "Arsenic": Variations in the Toxicity of Arsenious Oxide, J. Pharm. 20: 181 (Oct.) 1922.

Association News

ANNUAL CONFERENCE OF STATE SECRETARIES

The Annual Conference of Secretaries of Constituent State Medical Associations was held at the offices of the American Medical Association in Chicago, November 17 and 18. The secretaries of thirty-six state associations were in attendance. The states not represented were Arkansas, Florida, Georgia, Idaho, Illinois, Maryland, Massachusetts, Michigan, New York, Oregon, Rhode Island, South Dakota and Washington. Dr. G. E. de Schweinitz, President, Dr. Ray Lyman Wilbur, President-Elect, and the members of the Board of Trustees of the American Medical Association were in attendance at the conference. The members of the Council on Health and Public Instruction were also present. The papers read before the conference and the discussions thereon will appear in the *American Medical Association Bulletin*.

BOARD OF TRUSTEES

Report of Session Held Nov. 16, 1922

The autumn meeting of the Board of Trustees of the American Medical Association was held at the Association headquarters, November 16. The meeting was called to order by the chairman, Dr. Dowling, at 10:15 a. m., all members of the Board being in attendance. There were also present: the President, George E. de Schweinitz; the President-Elect, Ray Lyman Wilbur, and the General Manager, George H. Simmons.

In addition to the transaction of routine business relating to the salaries of heads of departments, based on a policy suggested by the General Manager, the approval of the purchase of two additional printing presses and inspection of the addition to the headquarters building now in course of construction, the following items of business were considered and carried out:

EDITOR OF ARCHIVES OF NEUROLOGY AND PSYCHIATRY

Dr. E. W. Taylor of Boston, professor of neurology at the Medical School of Harvard University, was elected a member of the editorial board of the *Archives of Neurology and Psychiatry*, to fill the vacancy created by the decease of Dr. Pearce Bailey.

APPOINTMENT OF MEMBER OF COUNCIL ON PHARMACY AND CHEMISTRY

Dr. F. W. Peabody of Boston, professor of medicine at the Medical School of Harvard University, and physician-in-chief of the Boston City Hospital, was elected a member of the Council on Pharmacy and Chemistry to fill the vacancy created by the resignation of Dr. C. L. Alsberg, formerly chief of the Bureau of Chemistry, Department of Agriculture, and now connected with the Food Research Institute of Stanford University.

BUREAU OF LEGAL MEDICINE AND LEGISLATION

Dr. W. C. Woodward, Executive Secretary of the Bureau of Legal Medicine and Legislation, presented a report, of which the following is an abstract:

The Bureau of Legal Medicine and Legislation had, since the meeting of the Executive Committee on October 20, devoted much time to the matter of the defense of animal research, because of the activity of the organized forces opposing the use of animals in medical research and the prevention of disease.

In Colorado, the people were compelled under the initiative to decide at the November election on a measure forbidding the use of animals for this purpose. The Colorado State Medical Society organized an effective campaign through the Colorado Association for the Protection of Public Health to defeat the measure. The Executive Secretary was invited to assist in the campaign, and spent eleven days in Colorado, visiting Denver and ten outlying cities and towns, speaking from one to four times in eight of them, and conferring with interested parties in all. The measure was defeated by a vote of about six to one.

In California, the opponents of medical research had, also under the initiative, organized a campaign similar to that waged in Colorado. A similar measure was defeated in 1920. During the recent campaign, at no time did the situation seem so critical as in Colorado. The California State Medical Society, the California League for the Conservation of Public Health and other forces were organized for the protection of research, and at the polls the measure to prevent the use of animals was overwhelmingly defeated.

The effort that is now being made by the antivivisectionists to induce Congress to enact legislation to prevent the development by the Army and Navy of means of defense against gas attack is still pending and will receive attention.

An act was passed by the Washington legislature in 1921, rendering it discretionary with the parent whether his child should or should not be examined in connection with the medical inspection of schools, and compelling the school authorities to procure the consent in writing of the parent of each schoolchild before requiring such child to submit to vaccination. This act was defeated at the polls, November 7, under a referendum, by a vote of about two to one.

A demand by the collector of internal revenue at Omaha, that the Nebraska State Medical Association file annual returns under the federal income tax law, was withdrawn by the Commissioner of Internal Revenue after the Executive Secretary had personally presented the case to him. The original demand had been based on the hypothesis that the medical defense service maintained by the Association was outside of the activities of a scientific organization not organized for profit, and for that reason rendered the Association liable to the making of annual reports and to the payment of an income tax if its income were large enough to call for such payment.

It has been impossible as yet to procure a reversal of the Treasury decision to the effect that the expenses of a physician incident to the attendance at a medical convention were not "ordinary and necessary expenses" included in carrying on his profession, notwithstanding that the act provides that traveling expenses while away from home in the pursuit of a trade or business may be included as ordinary and necessary expenses thereof. Further efforts will be made to procure a reversal of this decision.

The resolution adopted by the House of Delegates, "that provision be made for supplying bottled-in-bond whisky, for medicinal use only, at a fixed retail price to be established by the government," has been met to the the extent that regulations recently formulated have been framed so as to encourage the dispensing of whisky in original bottled-in-bond containers. The entire matter is still pending, and it is hoped that further concessions may be obtained.

The U. S. Veterans' Bureau, despite protests, continues to train veterans as chiropractors. The Bureau of Legal Medicine and Legislation is, however, still active in the matter, with a view to procuring a discontinuance of the practice.

Looking toward the preparation of the report, directed by the House of Delegates, concerning legal defense indemnity, conferences have been held with representatives of certain insurance companies issuing medical defense policies, and other studies have been undertaken.

A study is being made of the laws regulating the practice of medicine and of submedical callings such as chiropractic, so that the bureau may be of service to state societies in their efforts to prevent unwise legislation.

That part of the report dealing with medical practice acts was discussed by various members of the Board. Dr. Woodward expressed the opinion that it is important to ascertain the consensus of the medical profession regarding the requirements of a standard medical practice act, and that probably the best way to do this would be to call conferences of the legislative committees of the constituent state associations to meet in various sections of the country to work out the details of a model law.

Dr. Woodward's report was accepted by the Board, and he was directed to present it at the meeting of the state secretaries to be held at headquarters, November 17 and 18.

COMMITTEE ON CULTS

In accordance with the resolution adopted by the House of Delegates at St. Louis at the last annual session of the Association (Proceedings of the House of Delegates, THE JOURNAL, June 3, 1922, p. 1713), the President of the Association, Dr. de Schweinitz, nominated as a special committee, to cooperate with the "Association of American Universities, the National Education Association, the Carnegie Foundation for the Advancement of Teaching, and Federation of State Medical Boards, . . . for the purpose of collecting and disseminating all reliable data and information in regard to the methods of the various systems of drugless therapy": Dr. Charles E. Humiston (chairman), Illinois; Dr. F. B. Lund, Massachusetts; Dr. John D. McLean, Pennsylvania; Dr. A. D. Dunn, Nebraska, and Dr. T. S. Cullen, Maryland.

MEMORIAL TABLETS AT HEADQUARTERS

The following resolution was unanimously adopted: That the President of the Association be authorized to appoint a committee of not less than three or more than five, including himself as chairman, in accordance with the resolution passed by the House of Delegates (Proceedings of the House of Delegates, THE JOURNAL, June 3, 1922, p. 1713) to study the subject of memorial tablets to be placed in the headquarters building, with especial reference to the placement of a tablet in memory of Dr. Joseph N. McCormack, as directed by the House of Delegates. The President, Dr. de Schweinitz, appointed Drs. Phillips, Simmons and Billings to act with him on this committee, with the understanding that the report be made to the Board of Trustees at the annual meeting in February, 1923.

ADVERTISING OF COMMERCIAL LABORATORIES

At a former meeting of the Board, a resolution was adopted directing the advertising department of THE JOURNAL not to accept advertisements of commercial laboratories in which the personnel, including consultants, and the prices of the various tests are mentioned. Following this action of the Board, the Advisory Advertising Committee at headquarters, which consists of six members and which meets every Thursday morning to consider applications for advertising in THE JOURNAL, held several conferences to consider the principles which should govern the acceptance of advertising of clinical pathologic laboratories. At the September meeting of the Executive Committee of the Board, the Advisory Advertising Committee presented the following report:

To the Board of Trustees:

Recommendations have been made to the Advertising Committee that in advertising commercial laboratories in THE JOURNAL, the names of the personnel, their qualifications for rendering service and the price to be charged for such tests should be omitted. Believing that such action was not in the interest either of the physician or of the public, the Advertising Committee submits the following brief:

Omission of Price.—The omission of price permits the man who calls himself a laboratory specialist to make charges for laboratory tests on a sliding scale. Such variations in price are not warranted by the character of the work done. It permits the laboratory man to be a superspecialist of the type which is being opposed in other branches of the profession. The status of the clinical pathologist is not the same as that of the internist or surgeon. The latter deals with variables—human beings. The former conducts manipulations on fixtures—inanimate substances. If the tests are

scientifically performed, the results must be the same in the hands of all well-qualified men. Personality does not enter in; training does. It is known that when the prices are not generally known, some laboratories charge physicians unwarranted fees for services. At the same time, when prices are not made public, an unscrupulous physician may charge patients unwarranted prices for laboratory work. Such work as the Wassermann test, urinalyses, blood counts and similar technical procedures are standard *commodities* which can be furnished by persons of a certain minimum training at a reasonable fixed price which may be estimated and controlled through the advertising committee of THE JOURNAL.

Personnel.—The personnel is a variable factor in laboratory service. If, then, prices are to be made public, as we believe they should be, it naturally follows that, rather than omitting the names of the personnel, their inclusion in the advertisements should be encouraged. At least, the Advertising Committee must have the names in order to ascertain the training and competence of those doing the tests, and thus to judge whether or not the advertising is acceptable. In the interest of physician and public alike, it is desirable to make public both personnel and fees, and thus stimulate competition on the basis of the qualifications of those doing the work. The interests of the public are served by competition, provided that advertised claims are verified and honesty established; they are not served by the secrecy that would inevitably follow if advertising of laboratory service were limited merely to the names of individual clinical pathologists.

Consultants.—Only a few commercial laboratories now advertise a consulting staff. As far back as 1905, there appeared in THE JOURNAL laboratory advertisements with the names of the consulting staffs, so that precedent is available. Needless to state, a consulting staff which renders actual service to the laboratory in advising regarding methods and in standardizing the work increases the value of the service. It remains for THE JOURNAL, through its Advertising Committee and its Bureau of Investigation, to ascertain whether the consulting staff actually functions. Those laboratories which list names of "consultants" who lend only their names for purpose of advertising will not be permitted to advertise in THE JOURNAL. But a consulting staff which actually works may well be a worth while feature and should be encouraged.

It is to be especially emphasized that the advertising of commercial laboratories in THE JOURNAL is not addressed to the public but to the medical profession. Commercial laboratories whose advertisements are acceptable to THE JOURNAL do not perform services for the public except through the physician, and report only to the physician who sends the patient. Laboratories advertising in THE JOURNAL are asked to submit the name of the director, who must be a physician. They are also requested to submit statements of fees charged for routine tests.

In conclusion, the committee believes that the best interests of the medical profession and the public might be served through establishing a committee of the Association which would investigate and standardize laboratory service and check the claims made for various commercial institutions.

The Executive Committee received this report, and recommended that it be presented to the full Board at this meeting.

The subject of the character of the advertisements carried in THE JOURNAL, and especially of commercial laboratories, aroused general discussion by all of the members of the Board, by the President, the President-Elect, the General Manager, and by some members of the Advisory Advertising Committee who were invited to the conference. Finally, by resolution, the Board rescinded its former action and adopted the principles contained in the report of the Advertising Committee. In this connection the Executive Committee of the Board was directed to give close scrutiny to advertisements appearing in THE JOURNAL, and it was recommended that the Committee on Advertising endeavor to have the commercial laboratories make the circulars sent through the mails to the medical professional correspond in principle with the advertisements placed.

INDEXING THE CONTENTS OF THE JOURNAL

Attention was called to the new method of indexing the contents of each number of THE JOURNAL. This method was put into effect as an experiment, to be carried through the year. Many of the physicians who have written on the subject have emphasized the great advantage of this form of indexing.

SECRETARY OF THE ASSOCIATION

Dr. Billings, Chairman of the Executive Committee of the Board, stated that since the death of Dr. Craig the members of the Board of Trustees, the executive officers and others had made inquiries as to an available, qualified Fellow of the Association to fill the position of Secretary; that suggestions had been offered, and that some correspondence had been had with physicians mentioned for the position, but that nothing had been accomplished. Meantime, the work of the Secretary had been assigned to Dr. Olin West, who had filled the position of Field Secretary since April, 1922. Attention was called to the fact that Dr. West had had experience as Secretary of the Tennessee State Medical Association, and had a wide acquaintance with the medical profession of the country. After considerable discussion, Dr. Olin West was unanimously elected by the Board as Secretary of the Association to fill the vacancy created by the death of Dr. Craig.

LAY MEDICAL JOURNAL

The Board invited the Council on Health and Public Instruction to meet in joint session to reconsider the adopted and future policies of the Association in the publication of the health journal. Drs. Victor C. Vaughan, Haven Emerson and Milton Board of the Council on Health and Public Instruction were present.

By resolution, after free discussion, it was unanimously decided that the page-size of the health journal should be the same as that of THE JOURNAL. The title of the journal has been the subject of considerable discussion at numerous conferences of the Trustees, the Executive Committee and the Council on Health and Public Instruction. The name *Hygeia* was finally adopted, with the subtitle "A Journal of Individual and Community Health, Founded and Published by the American Medical Association." The price of the journal was tentatively established at $3 a year and 25 cents a copy.

Dr. Victor C. Vaughan, who is now giving his full time at Association headquarters to the organization and collection of material for *Hygeia*, presented a provisional table of the contents of the first number. The Board concurred in Dr. Vaughan's statement of the present understanding that the members of the Council on Health and Public Instruction are the editorial board of *Hygeia* and that for the present the executive editorial board at headquarters shall consist of Dr. Victor C. Vaughan with the cooperation of Drs. Morris Fishbein and Arthur J. Cramp of the editorial staff of THE JOURNAL.

The Board adjourned, subject to the call of the Secretary.

On Friday, November 17, all members of the Board, the President and President-Elect attended the Annual Conference of Secretaries of Constituent State Medical Associations.

On Saturday morning, November 18, the Board reconvened with Chairman Dowling presiding, all members of the Board, the President, the President-Elect and the General Manager, were in attendance.

MEMORIAL RESOLUTIONS ON THE DEATH OF DR. CRAIG

The Board ordered the Secretary to prepare resolutions expressive of its sentiments in regard to Dr. Alexander R. Craig. These resolutions read:

The Board of Trustees is very mindful of the great loss sustained by the American Medical Association in the death of Dr. Craig, its Secretary since 1911. His counsel and advice in the many difficult problems which confronted the Association from time to time were especially valued. Always he was modest, patient, tolerant and able to see more than one side of a problem under discussion.

His associates at headquarters and others who were fortunate enough to come in frequent contact with him respected him for his ability and efficiency as an official, and loved him for his manliness, gentleness and other qualities of a Christian gentleman.

In placing these inadequate estimates of the splendid character of our departed friend in the minutes of the Board, we also extend our deep sympathy to his widow, who for many years shared his joys and sorrows, and who, we sincerely hope, will be sustained and comforted by treasured memories of a man whose life was characterized by the precepts of the Golden Rule.

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SCIENTIFIC EXHIBIT

Dr. D. Chester Brown, Chairman of the Committee on Scientific Exhibit, presented a report in which he called attention to the splendid character of the exhibits made at St. Louis, and made suggestions for the general improvement of the Scientific Exhibit. The Board directed the committee to give consideration to the subject of the responsibility for the Scientific Exhibit, and to report at the meeting of the Board in February, 1923.

PUBLIC HEALTH EXHIBIT

Dr. Walter T. Williamson advocated the utility and need of a public health exhibit for the education of the general public in addition to the Scientific Exhibit. Mention was made of the public health exhibition given recently at Portland, Ore., under the auspices of the Oregon State Medical Association and the local medical, dental, pharmaceutical and nurses' organizations. The initiative for the public health exhibit at Portland, and in four or five other cities during the past year or longer, was due to the National Committee of Public Health officers, composed of representatives of the U. S. Public Health Service, the department of health of the several states, municipalities and others. The main purpose of these public health exhibits is to educate the public in health principles, and at the same time to discourage commercialism in public health exhibits, of which examples exist.

By resolution, the Board directed the Committee on Scientific Exhibit to investigate the question of public health exhibitions to be made under the auspices of the American Medical Association or in cooperation with the national committee of health directors here mentioned, and to report to the Board at the annual meeting in February, 1923.

The Board then adjourned.

FRANK BILLINGS,
Secretary, Board of Trustees.

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Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Physician Put on Probation.—Dr. Daniel E. Mason, Oakland, was placed on probation for one year by the state board of medical examiners, for operating a cancer cure sanatorium in conjunction with an unlicensed person, recently.

Dr. Case's Petition Denied.—The state board of medical examiners, October 19, denied the petition of Dr. Elias P. Case, physician of Corning, to set aside its recent action in suspending his license for one year. Dr. Case's license was suspended after he had been convicted on a charge of obtaining money under false pretenses.

Hospital News.—A psychopathic ward will be erected at the Fresno County Hospital, Fresno, immediately, it is announced. It will be completed next year at a cost of approximately $75,000. Under present arrangements, it is necessary for alleged insane persons to be confined in the county jail until a lunacy commission can be summoned to determine their condition. When the new ward is completed, they will be confined at the hospital pending hearings. The children's ward and the contagious disease ward will also be remodeled.——A two-story fireproof addition will be erected at the Japanese Hospital, Los Angeles.——Construction work will be started in March, 1923, on a new $250,000 sanatorium for Alameda, it has been announced by the superintendent of the Alameda Sanatorium. The new institution will be three stories high and will be erected on the site of the present sanatorium.——The new Antelope Valley Hospital, Lancaster, was formally opened to the public, October 15.

COLORADO

Personal.—Dr. John H. Bush, Sterling, secretary of the Northeast Colorado Medical Society, has been appointed city health officer of Boulder to succeed Dr. John R. Barber who has removed to Portland, Ore., his former home.——Dr. Frederick S. Spearman, Rifle, has gone to Rice, Ariz., to take charge of a small hospital conducted by the Indian Service.——Dr. Gerald B. Webb, Colorado Springs, read papers before the meeting of the Northwestern Ohio Medical Society in Lima, recently.

Rehabilitation for Cured Tuberculous Patients.—A system of industrial rehabilitation for tuberculous patients who have been restored to health will be inaugurated by the Jewish Consumptives' Relief Society, immediately, it is announced. Abram Gideon, Ph.D., New York, will have charge of the new social service department, which will include operation of the industrial rehabilitation system and all other forms of contact between the society and the public. A factory will be opened on a small scale in which the patients will produce, under strict medical technical supervision, such merchandise as they can handle.

DISTRICT OF COLUMBIA

Dairy Congress.—The World's Dairy Congress Program Committee on Regulation and Control held a meeting in Washington, November 17. H. E. Van Norman, president of the congress, described conditions prevailing in the dairy countries of western Europe last summer. He stated that Canada is one of the leaders in the grading of butter and cream; while Holland, Denmark and Australia have worked out efficient systems of control over butter intended for export.

GEORGIA

New Health Council Appointed.—The Floyd County Health Council was recently formed in Rome with Dr. William H. Lewis, president, and Dr. Buena V. Elmore, secretary. The council was organized for the purpose of holding a series of public health lectures in order to instruct the public in the care and prevention of disease. The first lecture was given on cancer during Cancer Week.

ILLINOIS

Health Educational Program in Scott County.—In cooperation with the Winchester Women's Club, Dr. C. S. Nelson, district health superintendent of the state department of public health, carried out an extensive and successful public health educational program in Scott County during the week of November 12-18.

Revised Rules for Reporting Tuberculosis and Venereal Disease.—Rules and regulations of the state department of public health pertaining to reports of cases of tuberculosis and venereal diseases have recently been revised. A number of rather important changes were made relative to each of the diseases. Copies of the revised editions of the rules may be had on application to Dr. Isaac D. Rawlings, Springfield.

Library Offered to Medical Society.—Attorney Thomas Gill has offered the library of his brother, the late Dr. George P. Gill, to the Winnebago County Medical Society, provided the society will assume responsibility of creating and maintaining a medical library in Rockford. Dr. D. B. Penniman, president of the medical society, appointed a committee to confer with other organizations on the matter of accepting Dr. Gill's library.

Pasteurization Campaign Started.—The district health superintendents of the state department of public health have been instructed to start educational propaganda in favor of milk pasteurization in all cities of the state having 5,000 or more inhabitants. All such activity is to follow a prearranged plan, with a view of causing municipalities to adopt the model milk ordinance recently drafted and now recommended by the department. The ordinance was recently adopted in Rock Island, DeKalb and El Paso and is before city councils for action in a number of other places.

Public Welfare Conference.—The annual Illinois Conference on Public Welfare was held in East St. Louis, November 12-14, under the presidency of John L. Whitman of Chicago. Dr. Evans, chairman of the Illinois Board of Public Health Advisors, was appointed chairman of the committee on health and the physically handicapped. Among the visiting speakers were: Drs. Isaac D. Rawlings and C. W. East of Springfield; P. S. Winner, Elgin; Thomas H. Leonard, Lincoln; E. T. Sloan, Bloomington; J. M. Furstman, Peoria, and Harold N. Moyer and E. H. Ochsner of Chicago.

Hospital News.—Plans for a $60,000 addition to St. Charles Hospital, St. Charles, have been announced. A three-story annex for maternity cases will be built and a training school

for nurses will be added.——The St. Mary's Hospital, a new institution at DeKalb, has recently been opened.——The foundations have been put in for the new nurses' home of Hammond City Hospital, Genesee.——The mayor of Girard has purchased a building which he is having remodeled for use as a hospital. It is expected that the institution will be ready for occupancy, Jan. 1, 1923.——Dr. George Greenbaum has purchased the residence of C. E. McClintock at Johnston City and will establish a hospital in the city.——Dr. Edward K. Disney, formerly head of the Municipal Hospital, Louisville, Ky., has been appointed medical director of Oak Knoll Sanatorium, the tuberculosis hospital for Tazewell County, Mackinaw.——The new 130 bed institution at St. John's Hospital, Springfield, is expected to be opened to the public in February, 1923.

INDIANA

Hospital News.—The Grant County Hospital, Marion, has been given a donation with which to outfit a laboratory.——The Union Hospital, Terre Haute, will open its new addition this month. Only a part of the wing will be used, but the entire addition will accommodate 100 patients. A campaign for funds is contemplated to supply equipment.

Medical Society Reorganized.—The first meeting of the Fifth District Medical Society since 1917 was held at Terre Haute, November 14. A banquet was held before the meeting. Dr. Jacob F. Smith, Brazil, was elected president; Dr. Alfred E. Rhein, Rosedale, vice president, and Dr. Charles Wyeth, Terre Haute, secretary. Dr. William A. Jenkins, professor of medicine and clinical medicine, University of Louisville, Medical Department, Louisville, Ky., was the guest of the evening, and gave an address.

IOWA

Personal.—Ruth Okey, Ph.D., has resigned from the biochemical laboratory of the University of Iowa Hospital, Iowa City, to take up the teaching of nutrition at the University of California.——The council of the Iowa State Medical Association has appointed Dr. Addison C. Page, Des Moines, treasurer of the association to succeed Dr. Thomas F. Duhigg, who resigned recently. Lieutenant Duhigg, U. S. Navy, sailed from San Francisco for a two-year cruise around the world with the Asiatic fleet. His place in Des Moines as examining surgeon for the naval recuiting office has been taken by Lieut. Zacariah A. Barker.

LOUISIANA

Résumé on Anatomy Sections.—The library of Tulane University School of Medicine, New Orleans, has published a résumé on the preservation of anatomy sections by Dr. Edmond Souchon, professor of anatomy at the university. A copy may be obtained by applying to the librarian of Tulane University School of Medicine, 1551 Canal Street, New Orleans.

Hospital News.—St. Luke's Private Sanatorium, New Orleans, recently converted from St. Simeon's school into a sanatorium, will be formally opened to the public this month. The institution is the enterprise of Dr. Benjamin F. Gallant, for many years superintendent of the Charity Hospital. In addition to about thirty private rooms and suites, there will be accommodations for about 100 patients.——The Knights of America, a fraternal order, will erect a sanatorium in the near future near Panchatoula, it is announced. The institution will have accommodation for twenty-four patients.

MARYLAND

Convention of Clinical Surgical Society.—The Clinical Surgical Society held a two-day convention at the Johns Hopkins Hospital, Baltimore, November 16-17. In addition to business sessions at the hospital, an inspection of the Johns Hopkins Hospital and clinics, the School of Hygiene and Public Health, Johns Hopkins University, and the Maryland University was made by the members, who came from all parts of the country to attend the meeting. Among the former Hopkins physicians present were Dr. Harvey Cushing and Dr. George Hoyer.

New Eye, Ear and Throat Dispensary.—Establishment at the Bay View General Hospital of a free eye, ear, nose and throat clinic, to be open three days a week for the benefit of children in the eastern section of Baltimore has been approved by the supervisors of city charities. This clinic will be in operation shortly and is intended to supply means of removing adenoids and tonsils for children of this district whose parents are without means. Facilities for such clinics will be provided by the health department in connection with the group of municipal hospital buildings to be erected at Montebello, but it will be some time before the new group is completed.

Convention of the Association of Hospital Social Workers.—The Middle Atlantic District of the Association of Hospital Workers held a two-day convention in Baltimore, November 21-22. The principal meeting during the convention was held, November 21, at Osler Hall, Medical and Chirurgical Faculty Building, with Dr. Winford H. Smith, director of the Johns Hopkins Hospital, presiding. Among the speakers on this occasion were Miss M. A. Cannon, executive secretary of the American Hospital Association committee on training, Dr. Esther L. Richards, Phipps Psychiatric Clinic, Johns Hopkins Hospital; Dr. Francis Lee Dunham, psychiatrist to the Maryland Child Labor Commission; J. Prentice Murphy, executive secretary of the children's bureau, Philadelphia, and Dr. George Bennet, Johns Hopkins Hospital. Various phases of social service work were under discussion on this occasion. On the afternoon of the 21st, a round-table discussion on psychiatric problems took place at the U. S. Veterans' Hospital, Fort McHenry; and on the afternoon of the 22d, another round-table discussion was held at the Henry Phipps Psychiatric Clinic, Johns Hopkins Hospital. Several hundred members of the association attended the convention.

MASSACHUSETTS

Boston Medical History Club.—A meeting of the club was held at the Boston Medical Library, November 17, in commemoration of the third centenary of the birth of Molière (1622). Dr. Joseph W. Courtney read a paper on "Molière and the Faculty."

Assistant Physicians Meet.—At the fifty-seventh annual meeting of the Massachusetts Association of Assistant Physicians in Boston, November 16, Dr. Arthur E. Pattrell, Boston, was elected president; Dr. Roderick B. Dexter, Boston, vice president, and Dr. Neil A. Dayton, Wrentham, secretary-treasurer.

Harvard University Appointments.—At a meeting of the president and fellows, October 30, it was voted to make the following appointments for one year, from Sept. 1, 1922: James Percy Baumberger, teaching fellow in physiology; Thomas J. Duffield, instructor in vital statistics; Harold V. Hyde, and Carl E. Johnson, assistants in anatomy; Walter W. Fray, Austin teaching fellow in bacteriology; Francis Browne Grinnell and Harry Weiss, assistants in bacteriology; M. R. Everett, teaching fellow in biologic chemistry; William Breed and Henry Jackson, Jr., assistants in medicine; Robert Bayley Osgood, professor of orthopedic surgery; Trevor G. Browne, Robert J. Kirkwood and Monroe J. Schlesinger, assistants in pathology; Michael J. Conroy, instructor in pathology; William J. Merle Scott, Arthur Tracy Cabot fellow in surgery; Harold Everett Smiley, Charles Follen Folsom teaching fellow in preventive medicine and epidemiology; Edwin T. Wyman, instructor in pediatrics, and Bronson Crothers, Robert D. Curtis, Paul Waldo Emerson, Martin J. English, Hyman Green, Francis Browne Grinnell, Arthur B. Lyon and Arthur R. Newson, assistants in pediatrics.

MICHIGAN

State Health News.—A specially prepared book, entitled "Your City," containing facts, figures and illustrations of venereal disease control measures in Michigan, was issued by the state department of health, in cooperation with the U. S. Public Health Service, and sent out to mayors of twenty-eight cities in the state, recently. Accompanying each book was a personal letter from Dr. R. M. Olin, state health commissioner.

MISSOURI

Public Health Lecture Course.—The advisory staff of the Tuberculosis Society of St. Louis, in cooperation with the St. Louis Medical Society Speaker's Bureau, are giving a course of eleven free public health lectures for all persons interested in health work. The lectures are given on the first and third Tuesday of each month at the Melbourne Hotel, St. Louis. The first of these lectures was delivered by Dr. M. P. Ravenel, professor of preventive medicine at the University of Missouri.

NEVADA

State Board of Medical Examiners.—Dr. William M. Edwards, Mason and Dr. Albert R. Da Costa, Reno, were appointed to the state board of medical examiners, November 16. Dr. Da Costa succeeds Dr. Arthur P. Lewis of Reno, who resigned recently.

NEW MEXICO

State Board of Public Welfare.—At a meeting of the board, November 20, eight new regulations were passed, together with complete revisions of four others as follows:

(1) Governing the operation of sewage disposal plants; (2) sanitation of public camp grounds; (3) the prevention of ophthalmia neonatorum; (4) the protection of records of births and deaths; (5) the sanitation of construction camps; (6) the construction and operation of public swimming pools and appurtenances; (7) the qualifications of certain county health officers; (8) the practice of midwifery; (9) the disposal, interment, disinterment and transportation of the dead; (10) the reporting of notifiable disease and accidents; (11) the reporting of births and deaths, and (12) the control of communicable diseases.

NEW YORK

Society News.—At a meeting in Brooklyn, November 21, the Kings County Medical Society went on record as unanimously opposing a number of questions pertaining to medical legislation which will be discussed at Syracuse, December 2, at a meeting of the Medical Society of the State of New York to formulate a definite policy and program to be submitted to the newly elected assembly. Group medicine, pay clinics, health centers, compulsory insurance, registration for the profession and the workmen's compensation law (in case of one not allowed to choose his own physician) were all disapproved, and the legislative committee of the society will voice this general opposition to these items at the Syracuse meeting.——Twenty new members were elected into the New York Society of Anesthetists at its November meeting. The program was a recognition of the seventy-fifth anniversary of the discovery of chloroform. Dr. Palmer, president of the California Society of Anesthetists, was the guest of honor. Instruments and apparatus were exhibited for constructive criticism. Dr. Charles H. Sanford, presided at the meeting. ——The New York Society for Clinical Psychiatry was organized, November 9, at the New York Academy of Medicine. Four meetings will be held yearly at the different psychiatric hospitals in the city. Dr. George H. Kirby, professor of psychiatry, Cornell University Medical College, was elected president of the society; Dr. William C. Garvin, superintendent, Kings Park State Hospital, vice president, and Dr. Louis Casamajor, professor of neurology, College of Physicians and Surgeons of Columbia University, elected secretary.

New York City

Addition to Rockefeller Institute.—John D. Rockefeller, Jr., has purchased the block bounded by Avenue A, Sixty-Third and Sixty-Fourth streets and East River, at a price of about $1,000,000. While the future use of the property has not been announced, it is understood that it will eventually be used for additional buildings of the Rockefeller Institute for Medical Research, which occupies the three adjoining blocks.

Personal.—Dr. Charles L. Gibson, professor of surgery, Cornell University Medical School, New York, was the guest of the St. Louis (Mo.) Surgical Society, November 8.——Dr. Henry D. Silver fell down the subway stairs recently, fracturing his left patella in four places. He was operated on by the open method and is now making a satisfactory recovery.——Dr. James A. Hamilton, commissioner of correction of the city of New York for several years, has been elected secretary of state for the state of New York on the Democratic ticket.——Prof. E. G. Conklin, Princeton University, delivered the anniversary discourse of the New York Academy of Medicine, November 2, on "Problems of Organic Adaptation."——Dr. Frankwood E. Williams, medical director of the National Committee for Mental Hygiene, delivered a lecture at the New York Academy of Medicine on the afternoon of November 22, under the auspices of the National Committee for Mental Hygiene, the Public Health Committee, Education Committee of the Medical Society of the County of New York and the New York Academy of Medicine.

NORTH CAROLINA

Hospital Convention.—The fifth annual meeting of the North Carolina Hospital Association was held at Wilson, November 2, under the presidency of Dr. John A. Williams, Greensboro. The following officers were elected for the ensuing year: Dr. Eugene B. Glenn, Asheville, president; Dr. Charles A. Woodard, Wilson, first vice president, and Dr. James R. Alexander, Charlotte, secretary-treasurer. The meeting closed with a banquet given by the Wilson County Medical Society.

OHIO

Epidemic of Rabies.—Twenty persons were recently bitten by mad dogs in Coshocton County and fifteen dogs have been killed as the result of an epidemic of rabies. Pasteur treatment was given the victims. Meetings are being held to plan action against the spread of the menace. In many rural districts, cattle have been attacked by rabid dogs.

Social Welfare Conference.—The thirty-second annual session of the Ohio Welfare Conference opened in Columbus, November 1-4, under the presidency of Dr. Walter H. Brown, director of the National Child Health Demonstration. Problems of public welfare were discussed and the means to disseminate information concerning philanthropic endeavor and to promote social reform. It was stated that the child health demonstration conducted at Mansfield for the last year is proving sucessful according to reports; and it is proposed to open the health center formally to the public. Dr. Brown said that the mayor of Mansfield, the health officer and members of the board of education had cooperated and helped the project in every way possible, physicians and dentists giving their time free. Through the Women's Federation, the Farm Bureau and the American Red Cross, a health census has been taken of Richland County; and, through the cooperation of the Richland County Medical Society and the Ashland-Richland County Dental Society, a series of demonstrations in health examinations of the children in the schools were conducted, also health institutes, lectures and pageants.

PENNSYLVANIA

Anniversary Meeting of Academy of Medicine.—The twenty-eighth anniversary of the Harrisburg Academy of Medicine was celebrated, November 24, in the Penn-Harris Hotel. Dr. Lawrence Litchfield, Pittsburgh, president of the State Medical Society of Pennsylvania, was the speaker of the evening. His subject was "Clinical Observation on the Management of the Diabetic and the Prediabetic."

National System to Test Shop Workers.—At the meeting of the National Personnel Association in Pittsburgh, recently, it was announced that psychologic and physical tests of prospective employees, to determine their fitness for positions, will be made the rule in all of the larger Erie industries. Mental defects and diseases must be cured before even common laborers will be acceptable in modern shop organizations.

Philadelphia

Conference of Industrial Physicians and Surgeons.—At the sixteenth annual conference held in Philadelphia, November 17, Dr. Frederick L. Van Sickle, secretary of the Medical Society of the State of Pennsylvania, spoke on "Revamping Medical Legislation in Pennsylvania." Other physicians present at the meeting were C. E. A. Winslow, professor of public health, Yale University, New Haven, Conn., and Dr. Royd R. Sayers, chief surgeon, U. S. Bureau of Mines, Washington, D. C.

Massed War on Tuberculosis.—The massing in three separate sections of all the city's facilities for fighting tuberculosis, to get a grip on the disease in those districts and to demonstrate the effectiveness of a well-ordered campaign against a rising tide of tuberculosis, is recommended in a survey by Dr. Murray P. Horwood of the Massachusetts Institute of Technology. This plan was indorsed, November 22, by the executive committee of the Philadelphia Health Council and Tuberculosis Committee. The campaign will extend over five years. Dispensary facilities, hospital beds and nurses for follow-up work would be obtained from the pooled resources of the Jefferson and Eaglesville hospitals and other agencies in the city. Three wards, in which foreign-born whites, native-born whites and negroes predominate, will be selected for the experiment.

SOUTH CAROLINA

Physician Sentenced to Prison.—Charged with violation of the Harrison Narcotic Law, it is reported that Dr. David L. Bryson, Calhoun Falls, was found guilty in the federal court, recently, and sentenced to serve eighteen months in the Atlanta penitentiary. He was charged with dispensing narcotics unlawfully.

Personal.—Dr. Archibald E. Baker, Charleston, department editor of surgery of *Southern Medicine and Surgery*, is convalescing from an attack of dengue fever.——Dr. Baxter M. Haynes, Spartanburg, and Josiah S. Matthews, Denmark, have been appointed members of the state board of medical examiners.——Dr. Clough H. Blake, Greenwood, has been appointed a member of the city board of health.——Dr. William R. Wallace, Chester, has been elected a member of the executive committee of the state board of health.

VIRGINIA

Memorial for José Anselmo Lazo.—At a meeting of the Whitehead Medical Society, recently formed in honor of the late Dr. Richard Henry Whitehead, dean of the University of Virginia, by the medical students, it was decided to erect a tombstone at the grave of José Anselmo Lazo in the university cemetery. Lazo, a Nicaraguan by birth, entered the third year medical class of the university in 1918. In October of the same year, during the influenza epidemic, some of the medical students acted as nurses. Lazo volunteered, developed the disease, and died within four days.

State Medical Meeting.—At the fifty-third annual meeting of the Medical Society of Virginia, held in Norfolk, October 31-November 3, under the presidency of Dr. Edward C. S. Taltaferro, Norfolk, Dr. John Staige Davis of the University of Virginia was elected president for the ensuing year. Other officers elected were: vice presidents, Drs. Edwin L. Kendig, Victoria, George C. Griffith, Basic City, and Charles R. Grandy, Norfolk, and secretary-treasurer, Mr. George H. Winfrey (reelected). Dr. G. E. de Schweinitz, President of the American Medical Association, read a paper at the meeting. Dr. Frank Smithies, Chicago, was also a guest of the society.

WASHINGTON

Personal.—Dr. Jerry E. Vanderpool, Walla Walla, has been appointed county health officer to succeed Dr. W. G. Gowan.—— Dr. Annie E. Reynolds, Tacoma, has been appointed assistant supreme medical examiner for the Women's Benefit Association, with headquarters at Port Huron, Mich.——Dr. Charles H. Doe, Tacoma, has gone to Europe for a year's study in European institutions.

WEST VIRGINIA

Personal.—Dr. Joseph C. Brown, Nallen, recently fractured his arm while cranking his automobile.——Dr. Lucian N. Yost has been appointed full-time health officer of Marion County.

WISCONSIN

Hospital News.—A new wing containing twenty beds and additional roentgen-ray and laboratory facilities will be erected at the Columbia Hospital, Milwaukee, of which Dr. William E. Kylie is superintendent. —— The old Simpson Hospital at Tomah, closed during the World War, will be rehabilitated and operated by the city, it is announced.—— The site has been selected for the new isolation hospital for Madison.

Physician Found Guilty.—In a malpractice suit that was brought by Frederick Kasten against Dr. Henry T. Brogan, West Allis, a verdict of guilty was found, and an assessment of damages aggregating $14,951 was made by the circuit court jury, recently, it is reported. Brogan, it was charged, attended Kasten's wife during childbirth, and through alleged negligence in a minor operation at the time, extracted 28 feet of intestine, the woman dying shortly afterward.

CANADA

Ontario Medical Association Convention.—The forty-third annual meeting of the association will be held in Windsor, Ont., May 29-June 1, 1923, under the presidency of Dr. Edward R. Secord, Brantford. The Essex County Medical Society will entertain the members of the provincial association, on this occasion.

McGill Memorial.—A stained-glass window was unveiled at McGill University, October 5, to three members of the faculty of medicine who were killed in the World War. It is dedicated to Lieut.-Col. John McCrae, author of the poem, "In Flanders' Fields," Lieut.-Col. R. P. Campbell and Lieut.-Col. H. B. Yates. Sir Arthur Currie, principal of the university, unveiled the window.

University News.—Applications for admission to the new school of graduate studies in the University of Toronto were recently passed on, when 263 graduates from twenty-two universities were registered.——Organization is under way at the University of Toronto to provide all students with free medical attention, by means of a fee of $1, levied generally. ——The joint committee of the chamber of commerce of Hamilton, Ont., is now ready and waiting on the authorities of McMaster University, Toronto, to open negotiations relative to the transfer of the university to a site in Hamilton. ——Applications for loans to returned soldiers received this year by the alumni federation of the University of Toronto number 188, and the total amount involved is $35,445. More than 60 per cent. of the applications are from medical students.——The University of Montreal was recently damaged by fire to the extent of $300,000. Radium valued at more than $100,000, which was kept in a fireproof vault, escaped destruction.

GENERAL

National Committee for Mental Hygiene.—The thirteenth annual meeting of the committee was held in New York, November 9. Dr. Walter B. James, New York, was reelected president of the committee; Drs. Charles W. Eliot, Bernard Sachs and William H. Welch, vice presidents, and Mr. Beers, secretary. Prof. Elton Mayo, University of Queensland, Australia, gave an address.

Assistantships at the University of Rome.—The Italian Medical Society of New York has been notified by the department of ophthalmology of the University of Rome that two assistantships without salary are offered to American medical graduates of Italian extraction. The living expenses of these assistants will be paid. Further information can be obtained from the above named society.

Lampert Milk Bill.—The consideration of the Lampert pure milk bill for the District of Columbia will be one of the subjects of legislation that will be taken up at the present session of Congress. Hearings have already been held on the measure by a subcommittee of the House. The proposed law safeguards the purity of milk sold to the public in the District of Columbia and prevents profiteering in its distribution.

Southern Medical Association.—At the sixteenth annual meeting of the association, held in Chattanooga, Tenn., November 13-16, under the presidency of Dr. Seale Harris, Birmingham, Ala., Dr. Walter S. Leathers, Oxford, Miss., was elected president, and Dr. Lawrence T. Royster, Norfolk, Va., vice president. Dr. Marye Y. Dabney, Birmingham, Ala., was appointed editor and publisher of the *Southern Medical Journal*, for a period of three years. Dr. Vilray P. Blair, St. Louis, was awarded the medal for the best individual display of plaster casts, moving pictures and drawings of the results of plastic surgery. The attendance totaled 1,866.

Millions for Oriental Medical Colleges.—The Laura Spellman Rockefeller Fund has offered $1,000,000, provided another $2,000,000 is raised, for additional buildings of the Seven Union Christian Colleges for Women in the Orient. A part of this sum has been raised. Of these seven colleges, one is in Japan, three in China and three in India, two of them being medical colleges. The women of Albany, N. Y., have pledged $5,000 for the new Albany ward in the Medical School for Women, Velore, India, of which Dr. Ida S. Scudder is principal. Dr. Scudder is in this country, lecturing in the larger cities to raise the stipulated amount, in order to receive the additional million.

Bequests and Donations.—The following bequests and donations have recently been announced:

Stanford University, San Francisco, $20,000, for the first unit of a new convalescent home for children, to be erected on the campus, by Mrs. Henry Crocker; twelve divisions of civic, alumni, medical and women's groups, $43,015; $10,000, by Seelah Chamberlain, and $10,000, anonymously; $7,500, by B. F. Schlesinger; $5,000, each, from Frank Anderson, J. Leroy Nickel, Mayo Newhall and John D. Hooper; $10,000, from manufacturers of the city; $2,500, each, from the Honolulu Oil Company and the Columbia Steel Corporation; $1,000, each, from Fleischmann Company, Miss E. Marian Warren, Welch & Co., Mrs. Hellman, Alaska Packing Company, John Bremer Co. and the Coffin Redington Co.; $1,500, from William F. Herrin, and $500, each, from William Fries, Guggenheim & Co., Mrs. E. J. Williams and Henry Keller, Los Angeles.

University of California, San Francisco, an endowment of $500,000, by Mrs. George William Hooper, in addition to the $2,000,000, already given the university by the Hooper Foundation.

For a children's hospital in Chicago: on the death of her five children without issue, the sum of $200,000, for the establishment of the Munn Hospital for Children, under the will of Mrs. Carrie Munn.

Eye, Ear, Nose and Throat Hospital, New Orleans, $100,000, by Mrs. Dibert.

Presbyterian Hospital, New York, $50,000; New York Orthopedic Hospital, $25,000; Babies' Hospital, $15,000, and the Women's Hospital, New York, $10,000, by the will of Mrs. Annie Hyde.

Lake View Hospital, Danville, Ill., $15,000, by Rochester Sandusky of Indianola, and $10,000, from Joseph Cannon of Danville.

Ohio State University, as an endowment fund for the library of the department of chemistry, $17,000, by Mr. Charles C. Sharp.

For the American Legion Veterans' Camp, at Tupper Lake, N. Y., $10,000, by Edwin Gould.

Goshen Emergency Hospital, Goshen, N. Y., $3,000, from the proceeds of a benefit dance.

Philadelphia Home for Incurables, and the Babies' Hospital of Philadelphia, each, $1,500, and the Pennsylvania Hospital, Philadelphia, $2,500, by the will of James Butterworth.

Presbyterian Old People's Home, Evanston, Ill., $2,500, by the will of Dr. Robert P. MacArthur of Chicago.

Elgin (Ill.) Health Center, $1,000, by the Elgin National Watch Co.

Dover General Hospital, Dover, N. J., $500, by the hook and ladder company of that city in recognition of services rendered to the members.

LATIN AMERICA

Personal.—Dr. Jenaro Escalona, a professor in the Mexico City Medical School, and Dr. C. Rodriguez Mendoza, quarantine officer at Veracruz, represented the Mexican government at the Sixth Latin American Medical Congress, held in Havana in November.——Dr. Antonio Diaz has been appointed president of the board of aldermen of the city of Morelia, Mexico.

Foot and Mouth Disease Congress.—The Second International Foot and Mouth Disease Congress convened at Rio de Janeiro in October. Extensive reports were made on preventive inoculation against the disease and on treatment. Dr. R. Kraus reported the transmission of the disease to guinea-pigs and rabbits, which materially facilitates experimental study of vaccination and treatment. Vesicles developed on the tongue and feet of the rabbits and guinea-pigs resembling the aphthae in the large animals and in man.

The Oswaldo Cruz Foundation.—A society has been organized in Brazil for the purpose of planning a suitable memorial tribute to Oswaldo Cruz. It was decided that the best tribute would be in the form of institutions and efforts to promote public health, and it now reports the offer of Dr. Guilherme Guinle to construct with his private means an institute for research on and treatment of cancer. The offer has been accepted and the *Brazil-Medico* states that the committee is consulting experts and studying ways and means to make the new institution a model. The *Folha Medica* relates that the society has already 400 members enrolled. Dr. Salles Guerra has been elected president; Dr. Guilherme Guinle, vice president; Dr. C. Fraga, secretary, and Dr. J. Pedroso, treasurer.

FOREIGN

Malmö's New Welander Home.—The *Hygienisk Revy* reports the inauguration of another institution for receiving and treating children with inherited syphilis until cured. This one is at Malmö, and owes its inception to Dr. C. Cronquist. Funds were obtained from a Welander home lottery and other sources.

Naval Medical Memorial.—Surgeon Vice Admiral Hill unveiled the memorial designed for the Royal Naval Hospital, Chatham, November 11, and Archdeacon Ingles, chaplain of the British navy, made the dedicatory address, in memory of the members of the medical corps who died during the World War.

Typhus in the Transvaal.—A serious outbreak of typhus fever was reported from the diamond fields in the vicinity of Kimberly, South Africa, recently. Twenty deaths from the disease were reported from Gong-Gong, twelve from Winters Rush and Longlands, and also from Delport. The disease has occurred only among the natives thus far.

Physician Donates to University.—Under the will of the late Arthur Marmaduke Sheild of London, provision is made for the founding of a Marmaduke Sheild Scholarship in human anatomy of the annual value of $500 on such terms and conditions as the board of medical studies of Cambridge University shall select. The remainder of his estate is bequeathed to the university medical department for general medical purposes, on the death of his sister.

London School of Tropical Medicine.—At the annual dinner held, November 1, it was announced by Sir Arthur Robinson of the ministry of health that a scheme was under consideration whereby the London School of Tropical Medicine would be incorporated with the new Institute of Hygiene, which was made possible by a gift from the Rockefeller Foundation of New York. Sir Havelock Charles said that, if the aspirations of the school were met, the support of the staff and students would be freely given the new arrangements.

Commercial Disinfection of Wool and Hair.—The advisory committee on anthrax, set up by the International Labor Organization, will meet in London, England, December 5, with Sir William Middlebrock in the chair. Belgium, France, Germany, India, Italy, Japan, South Africa, Spain and Sweden will send representatives. The United States, which has not joined the organization and will not be officially represented, is sending the chief of its biochemical division of the bureau of animal industry to act in an unofficial capacity.

International Cancer Research Society.—The *Nederlandsch Tijdschrift* relates that at the recent international conference at Amsterdam of workers on tar cancer, it was decided to organize an international society, and to call it the Leeuwenhoek Experimental Cancer Research Society, with its headquarters at Amsterdam. The gathering at Amsterdam in October has already been mentioned in these columns, page 1779. Antonj van Leeuwenhoek, the Dutch microscopist, 1623-1732, was a wealthy naturalist who is said to have discovered the red corpuscles, and was the first to see protozoa, bacterial chains and clumps, and he described the capillary circulation.

Russian Medical Congress.—The *Deutsche medizinische Wochenschrift* relates that the Sixth All-Russian Congress on Internal Medicine convened in September at Petrograd, with 500 members in attendance. Professor Kontschalowsky of Moscow presided and Dr. Seyfarth was the vice president. The latter is professor at Leipzig but is at present in charge of the German Hospital at Petrograd and representative of the German Red Cross. He presented a collection of medical books and delivered an address on his method of puncturing the sternum to obtain bone marrow for diagnostic purposes. More than 104 communications were presented to the congress, and Moscow was appointed for the next meeting, to convene in 1927. The Fifteenth All-Russian Surgical Congress met the same week in Petrograd, with 685 members, and 158 communications were read.

Psychiatric Congress.—The second congress of Scandinavian psychiatrists was held recently at Stockholm, after an interval of nearly ten years. Over eighty members were inscribed. The *Ugeskrift for Læger* mentions that the meetings were held in the fine auditorium of the Swedish Medical Association, which "filled with envy the eighteen Danish members present." The liveliest discussion was on the question of "Sterilization," introduced by A. Petrén. Wigert's communication on the "Care of the Insane Outside of Institutions" also led to much discussion. Sjöbring's address was on "The Constitution Problem," and J. Smith's on "Different Converging Inherited Taints and the Psychoses Resulting Therefrom." Evensen spoke on "Mental Tests for Adults," Ehrnroth on "Serous Meningitis," and Winther on "Psychic Changes After Epidemic Encephalitis," describing the observations at Copenhagen.

International Congress on Social Hygiene and Pasteur Centennial.—The *Presse médicale* announces that this congress, which had been appointed for December, has been postponed to May, 1923. It is to meet at Paris and form part of the official celebration by the city of Paris of the centennial of Pasteur, May, 1923. Roux, director of the Pasteur Institute is to preside, and Calmette and Breton are the vice presidents already appointed. This Paris celebration is planned to precede the main celebration at Strasbourg, which opens, June 1, with the unveiling of the Pasteur statue in University Place. The Pasteur centennial exposition will be inaugurated on that day and will keep open to October 30. Special medical and other meetings have been planned for June and July at Strasbourg, international congresses on tuberculosis, cancer, syphilis, child welfare work and hydrology, refrigeration, stock raising and gardens for the working classes. The general commissioner of the Strasbourg celebration is Dr. Borrel, professor of bacteriology and hygiene at the University of Strasbourg. Dr. G. Weiss, dean of the medical faculty, is the president of the committee of organization.

French Colonial Public Health Congress.—The *Journal de médecine* of Bordeaux brings a full report of this gathering at Marseilles, the Third Colonial Congress, with 439 members inscribed. Numerous important studies of tropical medicine were presented, eliciting lively discussions. The army and navy physicians stationed in the tropics were nearly all present, as well as many in civilian medical posts. The work of the congress was divided into four sections, medicine, hygiene, hospitals and prophylaxis. The main addresses were published beforehand, and were presented to the members on arriving, forming a volume of 542 pages. Among the principles emphasized was the necessity for European nations realizing that the Europeans in the colonies are often the ones that bring and spread diseases, and that

local medical officers must realize their responsibility, and the imperious duty of protecting the natives, especially the children, against these imported maladies. It seemed to be the general opinion that medical treatment should be preferred for amebic abscess of the liver, leaving to the surgeon only the encysted, dead abscess. Emetin can cure acute amebic dysentery but seldom cures the chronic form.

Personal.—Prof. L. S. Fridericia of Copenhagen has been decorated with the Swedish Order of Vasa.——Dr. Jiménez Encinas, a well known laryngologist of Madrid, was recently summoned to his home town, Monda, to be present at the unveiling of a memorial tablet on the house where he was born and preside at a banquet in his honor. A dedicatory address on vellum was also presented to him by the city authorities.——Dr. Richard Sievers of Helsingfors was elected honorary member of the Finland Medical Association on the occasion of his seventieth birthday, recently.——A gold medal and album were presented, October 10, to Dr. A. Lanari on the completion of his term as dean of the medical department of the University of Buenos Aires.——A party of French physicians and officials of the public health service have been visiting the tuberculosis sanatoriums and preventoriums of Milan, Bologna and Turin and their vicinity.——A banquet was tendered Dr. Calleja, professor of histology at the University of Madrid, on the occasion of his fiftieth professional anniversary.——The *Medicina Ibera* mentions the arrival at Madrid of Prof. M. R. Castex of the University of Buenos Aires, one of the three directors of the *Prensa Médica Argentina*. He is on a tour through the medical centers of Europe.——Dr. Bordet, of the Bordet-Wassermann reaction, has been given an honorary degree by the University of Paris. He is professor of bacteriology at Brussels.

Belgian Congress on the Venereal Peril.—The Belgian League to Repress the Spread of Venereal Diseases organized recently a series of public conferences at Brussels, the first national congress on the venereal peril, held in the large hall of the Palais des Académies. On the platform were two members of the cabinet, the governor, the president of the lower house, and Drs. Bayet, Morelle and Dandoy, with Mme. Derscheidt, the organizer of the "home familial" for the soldiers, and Miss Burls, secretary of the league. Dr. Bayet spoke on the extent of the ravages of syphilis, the modern methods of diagnosis having revealed its previously incredible prevalence. Leredde called the syphilis spirochete "the most intelligent of parasites. It starts in with lesions so insignificant that the subject does not heed them, and by the time it is recognized the entire system is contaminated. . . . Most, if not all, malformations are due to inherited syphilis, from hare-lip to absolute idiocy. . . . The physician has powerful weapons at his disposal to combat syphilis, but he must dare and know how to detect it and treat it before pregnancy, during pregnancy, and in the child." Those who spoke on gonorrhea said that modern progress has been meager in the matter of combating gonorrhea. The gonococcus succumbs to a temperature of 42 C., and this has given encouraging results in some cases, but not in all, and the results of vaccine treatment have been irregular. "The physician must have the courage to forbid marriage as long as symptoms persist."

Deaths in Other Countries

Dr. **Cyril L. Clarke**, mayor of Peterborough, South Australia, was killed in an automobile accident, September 16.——Dr. **P. C. Woudberg** of Wellington, South Africa.——Dr. **J. F. Hoare** of London, England, at Ladybrand, South Africa, October 7.——Dr. **Alexander C. Brown**, emeritus professor of chemistry in the University of Edinburgh; winner of the Keith prize in 1875; October 28, aged 84.——Dr. **George Rendle**, secretary of the Medical School of St. Thomas' Hospital, London, in October.——Dr. **Lachlan G. Fraser**, surgeon to the Tynemouth Infirmary, president of the North of England Branch of the British Medical Association, October 5, at North Shields.——Dr. **G. Wallace-James** of Haddington, England, October 19.——Lieut.-Col. **Robert T. Beamish**, R. A. M. C., retired, October 26, in London.——Dr. **P. Briquel**, formerly professor of pathologic anatomy at the University of Nancy.——Dr. **P. Mantel** of Paris, aged 64.——Dr. **G. Watrin** of Liége.——Dr. **Germán Valenzuela Basterrica** of Santiago, surgeon to the San Juan Hospital.——Dr. **Manuel Rodríguez**, physician in charge of the dispensaries of Santiago. The *Revista de Beneficencia Pública* states that he succumbed to typhus.——Dr. **F. Cía**, dean of the profession at La Plata.——Dr. **P. Osorio** of Bagé, Brazil.——Dr. **O. Zippel** of Hamburg, aged 59.

Government Services

U. S. Veterans' Bureau Activities

Major Leon Fraser, former executive officer of the U. S. Veterans' Bureau, who left the United States, June 24, to make a survey of conditions affecting the bureau's beneficiaries in Europe and also to gather data as to what foreign countries are doing for their war-disabled, reports to the director that beneficiaries resident in Europe are receiving satisfactory care through the offices of the U. S. consular service and the U. S. Public Health Service officers attached to American legations; in fact, that an European office of the bureau will not be necessary. Germany with 3,800,000 pensioners is spending only $7,000,000 annually, whereas the United States expends approximately $500,000,000 annually. In France, the disabled veteran is allowed to travel on the state railways at one-fourth the regular fare; is exempt from many taxes, and is protected against increased rent. Major Fraser states that the foreign nations are having the same hospitalization difficulties as the United States, particularly with regard to mental diseases. England with more than 2,000,000 disabled men has fewer than 80,000 in vocational training service. Russia pays the highest for a disability, namely, 30 per cent., while England and France pay as low as 10 per cent. A recent innovation in the eighth district (Chicago) is the placing of a district office man in the field to act as district representative in all financial matters. This scheme fills a long felt need.

A new program and plan for the care and treatment of disabled ex-service men will be put into effect by President Harding within the next week, when the national executive will make a public announcement from the White House. Immediate construction of at least thirty-one modern hospitals and a reorganization of the methods of administration in the U. S. Veterans' Bureau are among the changes that will be inaugurated. There will also be a revision of the regulations for admittance to the government-owned institutions, and sufficient accommodations will be provided to prevent any delay in the admission of any applicant. Mental ailments that have caused no end of unsatisfactory response to treatment are to be cared for in hospitals especially constructed for such cases. The President's special board of hospitalization has completed its work and is ready to make it public. An exhaustive study has been conducted under the supervision of Dr. W. C. White, head of the committee on hospitalization.

The U. S. Veterans' Bureau issued Regulation 13, November 7, relative to the sale of by-products of occupational therapy. This regulation, which concerns articles made only at bureau hospitals, does not concern by-products of the activities of vocation training courses of the bureau covered in Regulation 29. This regulation provides that the articles made in the course of occupational therapy treatment shall be of a type that will have salable value, and will be the property of the government to be disposed of by a board of appraisers in the following manner: (*a*) sold without favoritism at a price fixed by the board of appraisers; (*b*) sold to the patient for the cost of material only; (*c*) salvaged when defective by reason of unskilled workmanship or faulty design, or (*d*) given to the patient when he makes a similar article, equivalent in material, value and design, for the government.

Hospitals Authorized

The Secretary of War has authorized the organization of the following hospitals, organized reserves:

General Hospital No. 70 (City Hospital Unit, Worcester, Mass.).

Evacuation Hospital No. 18 (Methodist Episcopal Hospital Unit, Indianapolis, Ind.).

Col. C. B. McCulloch, M. O. R. C., Indianapolis, Ind., has been assigned as commanding officer of General Hospital No. 70.

World War Veteran a Leper

U. S. Public Health Service officials this week took charge of Getulio Le Abelino, a native of the Philippines and an ex-service man, who was declared to be a leper after an examination by Washington, D. C., health officials. Abelino was taken to the United States leprosarium at Carville, La. He came to Washington to consult the U. S. Veterans' Bureau regarding compensation due him as a result of disabilities due to service in the World War.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 8, 1922.

Outbreak of Smallpox in London

A serious outbreak of smallpox has occurred in London. It began, October 27, at St. Andrew's Hospital, Bromley-by-Bow (in the east end), when the rash appeared on an inmate admitted from the Poplar workhouse on the 24th. The same evening, vaccination of the immediate contacts was begun, and subsequently the staff and nearly all of the inmates were revaccinated. On the 28th, five cases were discovered in the Poplar workhouse, which was at once quarantined. The inmates having smallpox were removed to a hospital, and disinfection was carried out. All the inmates were carefully examined. The dates of onset indicated that the five patients had been infected from one source, about October 13 to 15. Inquiry disclosed that a person who had fallen ill about that date had the rash of smallpox. Where the disease was contracted was not known. Other cases followed; and altogether thirty-eight cases occurred, with eleven deaths, including four outside the institution in persons connected with it.

The outbreak, which threatened to be extensive, now appears to be over, thanks to the alertness of the medical staff. All over London, vaccinations are being performed. In view of the neglect of vaccination, they are very necessary. Curiously, persons who at ordinary times regard vaccination as useless alter their view when confronted with the danger of smallpox. The ministry of health has issued memoranda enjoining vaccination. Only 40 per cent. of the babies are now being vaccinated, which greatly increases the risk of an epidemic. Health officers are authorized to vaccinate contacts; but the primary responsibility for vaccination at the public expense remains with boards of guardians (poor law authorities). District medical officers attending a case of smallpox are entitled to payment from the guardians for vaccinating any person resident in the house. The prompt vaccination of children between the ages of 6 months and 14 years is recommended; also of children under 6 months, in infected localities. On receipt of a notification of smallpox, the public vaccinator should offer to vaccinate all the inmates of the house. In ordinary circumstances it is held that no infant should be vaccinated under the age of 2 months, but it is recommended that younger infants be vaccinated if exposed to infection. Health officers are asked to examine the weekly statistical returns, so that the liability of any district to the disease shall be recognized early. Compulsory notification of chickenpox is advised if an extensive outbreak of smallpox appears probable. Every person suffering from smallpox should be removed to the smallpox hospital. Removal may be ordered by a justice, if required.

An Ex-Lord Chancellor on Professional Secrecy

The ex-lord chancellor, Lord Birkenhead, has published two volumes of essays entitled "Points of View," in which among other subjects, he discusses the question, "Should a doctor tell?" He states that the whole tendency of our law for many years has been in the direction of opening the mouths of those who can assist the course of justice, and not in the direction of closing them; in reducing those classes whose testimony, for whatever reason, cannot be accepted in a court of law, rather than in increasing them; and, in this, as in other matters, breaking down barriers of privilege. The obligation of silence with regard to professional communications to lawyers has, on the other hand, become more extensive; but it has grown under the hand of the judiciary, who can be trusted to curb any abuse of it. The obligation is not such as is claimed for physicians. To establish a class which, at its will, assists or obstructs the judges in their work would be a retrograde step. "Is the physician's first duty," he asks, "to the patient or to the state?" He declares that no case can be made out for privilege when privilege may come in conflict with law. The physician must tell all he knows about his patient, no matter what pain the telling may cause innocent people. No general statutory prohibition against disclosure by the physician in the witness box is consistent with the administration of justice.

Lord Birkenhead condemns even the tactful way in which, in a well known case, a physician voiced his suspicions that his patient was being poisoned, although no one prepared or administered the food except the patient's wife. Looking her steadily in the face, he said: "Were it not that I know that you prepared his food, I should have said that he was dying of poisoning." The consequences were that the patient began to mend, and that his wife eloped with another man. Lord Birkenhead thinks that the physician should have denounced the wife to the police. He overlooks the fact that the physician only suspected poisoning, and that if he had denounced the wife and his opinion had proved wrong, the consequences for him would have been serious. He also loses sight of the importance of the confidential relation between physician and patient. To abolish this would not serve the ends of justice. It would only prevent the physician's being allowed to treat disease in cases in which disclosure would be feared. The consequence would be injury to the community, whose interests Lord Birkenhead professes to have at heart.

A Physician's Retort to the Parson

At a meeting of the Wigton (Cumberland) Rural District Council, the Rev. J. Ewbank remarked that, despite medical science, infectious cases continually cropped up. The health officer, Dr. Briggs, replied, amid much laughter: "I may remind the speaker that the profession to which he belongs has been trying to put down sin for 2,000 years, but has not succeeded yet."

Arsphenamin Fatalities

In a letter to the *British Medical Journal*, E. C. Grey, the professor of chemistry, and R. S. A. Heathcote, professor of pharmacology of the Government Medical School, Cairo, call attention to an error in attributing toxic effects to faulty manufacture of arsphenamin. One fatality and some toxic phenomena were observed at the Lock Hospital, Cairo, and some of the arsphenamin ampules were handed to them for examination and investigation. The tubes were suspected of being faulty and of allowing decomposition of the contents, because, when immersed in alcohol, the contents became sticky and adhered to the glass. It was thought that the alcohol had penetrated into the interior. But the stickiness did not appear until after withdrawal from the alcohol, and lasted only a brief time, after which the contents became powdery as before. The phenomenon was exaggerated when ether was used in place of alcohol.

This gave the clue. When the ampules were plunged into ice, the powder adhered even more tightly to the glass. This may be explained by the fact that in all the cases, the cooling increases the partial vacuum in the ampule, especially of the spaces between the particles of light powder and between the powder and the walls of the ampule, because the glass and the powder conduct and absorb heat more quickly and to a greater degree than the air within the ampules. The particles brought together by contraction of the imprisoned air

adhere by cohesive force until shaken apart. The phenomenon appears to occur only with certain powders. It does not show that the ampules are unsound. Thus, again, the explanation of arsphenamin fatalities by some adventitious cause, whether in the drug, its mode of administration, or in the patient, breaks down. We come back to the fact, never adequately grasped because never satisfactorily explained, that arsphenamin, however correctly administered, is in some cases a deadly poison.

PARIS

(From Our Regular Correspondent)

Nov. 3, 1922.

The Progress of Urology in France

Three new chairs of urology have been created in France since 1920, at Lyons, Nancy and Montpellier. Prof. Emile Jeanbrau has been appointed to the chair at Montpellier. Jeanbrau has become known through his excellent works, to which I referred in a previous letter (THE JOURNAL, Nov. 26, 1921, p. 1749). He recently inaugurated his course by an instructive lecture on the part that France has played in the genesis and progress of urology. Jeanbrau states that suprapubic lithotomy was used on the living the first time successfully in France. It was described in detail by Rousset, a physician of Montpellier, who studied this operation so carefully on the cadaver that he was able in his book to formulate the technic in a very precise manner. However, suprapubic lithotomy was not to be reintroduced in France, where it first saw the light, until 1727, when it was brought in by Morand, who made the journey to London to learn it from Cheselden. Morand, furthermore, is to be praised for thinking out and applying the Trendelenburg position 150 years before the man whose name it now bears.

But it was especially during the course of the nineteenth century that France contributed mightily to the progress in urology, by creating, on the one hand, an ingenious stock of technical tools (instruments and procedures pertaining to catheterization, lithotrity, urethrotomy, endoscopy, ureteral catheterization), and, on the other hand, by introducing scientific urology as a substitute for empiric urology. It was due especially to Guyon and Albarran, the two great leaders of the school of the Hôpital Necker, that the fundamental principles of the pathologic physiology of the kidneys and the bladder were discovered; the great syndromes of urinary pathology, such as pyuria, hematuria and urinary infection, reduced to order, and the laws respecting the functioning of healthy and diseased kidneys formulated. At the International Congress of Urology, held in 1910, Professor Israel (Germany) paid just homage to Guyon with these words: "All the urologists in the world, whether they know it or not, have been his pupils." It is likewise due to the French works of Widal, Achard, Teissier and others that the study of nephritis has been established on an entirely new basis.

As Jeanbrau has so well said, urology does not in our day present itself as a specialty desirous of isolation and jealous of its independence, but rather as eager to absorb the nutrient juices of pathologic histology, experimental physiology, bacteriology, physics and chemistry, in order to furnish in exchange notions of general pathology applicable to medicine and surgery as a whole.

Comparative Statistics of Students at the University of Paris in 1921 and 1922

The University of Paris recently published comparative statistics of students matriculated in 1921 and 1922. July 31, 1921, the total matriculation reached 21,185 (17,993 men and 3,192 women). In 1922 the number had grown to 21,612 (18,066 men and 3,546 women), or an increase of 427 students. The department most strongly represented in 1922 was law. Then came medicine, with 4,639 students (738 women); belles-lettres, with 3,381 students (1,450 women); sciences, with 3,179 students (532 women) and pharmacy, with 743 students (234 women). The department in which the most women are enrolled is that of belles-lettres (1,450 women as against 1,931 men). From 1921 to 1922 the number of French students at the University of Paris increased by 959, while the number of foreigners decreased by 332. Of the 4,639 students enrolled in the department of medicine in 1922, 3,828 were Frenchmen and 811 foreigners, a decrease of 134 Frenchmen and 113 foreigners.

The Celebration of the Centenary of Pasteur

The ceremonies that will be held in the Pasteur Institute will include the convocation, under the auspices of the Pasteur Institute and the relatives of Pasteur, of representatives of all the societies of which Pasteur was a member. These representatives will speak of the part he took in the work of the various societies, following which a visit will be paid to the tomb of Pasteur. There will be an exhibit of relics of the scientist that have been carefully preserved by the Institute; more particularly, apparatus used by the master in making his researches. A commemorative medal will be struck, and the invited guests will each receive one as a souvenir of the occasion. The medal will bear the inscription: Hundredth anniversary of the birth of Pasteur, 1822-1922.

The Distress of Our Laboratories

In several previous letters I have referred to the fact that our laboratories are lacking in financial resources, and that they find it difficult to supply what is indispensable in the way of instruments and to secure the new men needed. This state of affairs, so profoundly regrettable, was clearly brought out at a recent meeting of a group of scientists held under the auspices of the *Bienvenue française*, to which representatives of the lay press had been invited. Two ways are open to remedy the situation. Professor Appel, rector of the University of Paris, has announced that a national committee for the aid of scientific research has been founded. It is also planned to address an appeal to Monsieur Poincaré, president of the council of ministers, to authorize, in connection with the centenary of Pasteur, a *journée nationale* in favor of our laboratories.

A Partnership Between Two Physicians

The voluntary surrender of a medical clientage, although it is often carried out in actual practice, is not considered in French law as a legal act, since it deals with something that is not a commercial product. In that connection, the question arises whether an agreement is valid by which a physician contracts to introduce and recommend another physician to his clients. What shall we say of articles of partnership according to the terms of which one party to the contract—a physician—contributes his clientage, and the other party furnishes a certain sum of money? The Court of Appeals of Paris recently annulled a contract of this nature. A physician who for eight years had practiced medicine in a certain city, where, according to his declaration, he had built up an extensive practice that brought him in a minimum of 45,000 francs annually, wished to secure a confrère as an associate partner in order that better care might be given his clientage. He accordingly associated with himself another physician, in order to practice together and conjointly the profession of medicine for an indefinite period, it being understood and agreed that the two parties to the contract should share equally the total amount collected in fees. This form of cooperation was accepted by the confrère, who agreed to pay in return the sum of 40,000 francs, 20,000 francs of which was to be paid the day that

he began to function in his new position, and the balance to be retained by him among the receipts.

The civil tribunal of the department of the Seine gave its decision to the effect that this partnership was legal in its aspects; but the Court of Appeals of Paris held a different opinion and annulled the contract, basing the decision on the fact that the patients, according to the terms of the contract, were to be divided equally between the two physicians without distinction as to the character and needs of the clients, the result being that the two physicians would visit alternately the same patient, so that the latter was not free in his choice of a physician. Consequently, the court held that "the clientage of a physician rests solely on the confidence of the patients."

Awarding of Prizes by the Academy of Sciences

From the Montyon prize fund, the Academy of Sciences has awarded several prizes: 2,500 francs to Dr. Charles Dopter, professor in the Ecole d'application de médecine et de pharmacie militaires of Val-de-Grâce; 2,500 francs to Monsieur Eugène Wollmann, director of the laboratory of the Pasteur Institute; 2,500 francs to Dr. Edmond Lesné, physician to the hospitals of Paris, and 2,500 francs to Dr. Léon Binet, director of the laboratory of the Faculté de médecine of Paris.

Death of Dr. J. Janicot

Dr. J. Janicot, formerly chief editor of the *Bulletin médical*, which office he filled for more than thirty years, has died, at the age of 75.

MADRID

(From Our Regular Correspondent)

Oct. 27, 1922.

Medical Conditions in the Central Plateau of Spain

Dr. Yagüe, gastro-enterologist, who has resided for years in Madrid, revisited the towns where he first practiced, and, on his return, gave an illustrated lecture based on his survey. It is saddening to return to those towns, where years and decades go by bringing no change, and where modern ideas divide the people into sects without increasing the general culture. In comparing present conditions with those existing thirty-eight years ago, Dr. Yagüe said: "The intellectual level has not risen at all. The improvement in the means of communication does not seem to have influenced it. A typical town some time ago had no roads; now it possesses two, which give the town three outlets and ready access to the capital of the province; but there are no signs of improvement."

Dr. Yagüe says, without hesitation: "I would again go through all my suffering just to get away and forge ahead. For years, many years, I lived just to work. But I would begin anew rather than return to that field where I began and which I deserted." Indeed, he was only too glad to get away from that vast steppe with its bare lands, where in summer the sun burns the stones, since there are not trees to protect them, and where the only plants are thorny grasses and dwarfed bushes. No birds are in sight, and the only sound is the howling of the wind in the winter.

An idea of the physician's life in such villages is illustrated by an episode in Yagüe's practice. One of the shepherd boys wintering cattle in Valencia contracted malaria. The disease was so serious that he was forced to return, prostrated with anemia. He was just recovering when he developed lobar pneumonia. Dr. Yagüe treated him according to indications. The parents, however, insisted on his bleeding the boy. He refused, as the patient's condition did not justify such a step. Then they went to protest to the mayor and the judge, asking for "justice on behalf of their son's blood." Dr. Yagüe suggested a consultation with another physician, but the patient was a charity case and the parents pleaded their poverty. In the meantime, the disease had reached its crisis, with a favorable prognosis. This was fortunate, as otherwise something unpleasant might have befallen the physician in charge. The one redeeming feature seen by Yagüe was the change for the better in the medical profession. Thanks to the strength derived from organization and close cooperation, physicians in the small towns are winning for themselves a more independent and dignified position.

Plague in Barcelona

A few cases of bubonic plague have been reported from Barcelona. To combat the disease at its start, Dr. Martin Salazar, the director general of public health, assumed charge personally. On his return to Madrid, he made the following statement for THE JOURNAL: Since 1905, small outbreaks of plague have occurred repeatedly at Barcelona. It is asserted that they are of foreign origin, as Barcelona trades extensively with Eastern countries and world ports in general. Some of the more recent outbreaks seem, however, to be due to latent epizootics in rats. As for the present epidemic, there is doubt as to its originating in an imported focus, as the port was built ratproof and the patients were employees of inland shops having no contact with the seagoing population. The foci were in flour mills and grain storehouses about the railroad station for Bilbao and Irún (French frontier) trains. There were twelve cases, with a 30 per cent. death rate. The most serious feature of the epidemic was the presence of infection in rats in the Northern Railway station, as shown by laboratory examinations.

The usual antiplague measures have been enforced. The authorities are carrying out a vigorous deratization campaign, and have succeeded in interesting the people in it. All storehouse owners are compelled to take similar action, being punished if they fail to do so. Antiplague vaccine is administered to all coming in contact with patients, or living or working on the same premises. Thus, if a case of plague occurs in a biscuit factory, the place is closed and antirat measures are taken. On reopening, employees before securing work must submit to immunization with antiplague vaccine. The port is free from plague, not a single case occurring among the people employed there. As a further precaution, measures for cleanliness have been pushed, rats have been trapped all along the harbor front, all workingmen have been vaccinated against plague, and disinfection measures are thoroughly enforced.

Marriages

MALVINE I. JUDELL, San Francisco, to PROF. ALFRED VON DECASTELLO of Vienna, Austria, October 24, at Vienna.

HENRY BERNARD HIBBE, Oak Park, Ill., to Miss Marjorie McCollins of Davenport, Iowa, at Dubuque, recently.

ALBERT W. PIGOTT, Tylertown, Miss., to Miss Olga C. Hammer of Odin, Minn., at New Orleans, recently.

DEWITT RAY AUSTIN, Charlotte, N. C., to Miss Allie Margaret West of Marshall, N. C., September 20.

OSCAR HUNTER MCCLUNG, Lexington, Va., to Miss Nancy Bourne Wayland of Corzet, Va., October 11.

LOLA D. CLARK MIGHELL to Mr. Glenn Kenderdine, both of Iowa City, at Cedar Rapids, Iowa, recently.

JOSEPH C. JONES, Spearman, Texas, to Miss Claudia Irene Claypool of Waco, Texas, November 13.

LEO JERMAIN CAMCHE, Williamsport, Pa., to Miss Anna Ruth Daniels of Brooklyn, recently.

FORREST M. BARFIELD, to Miss Dorothy Virginia Orr, both of Atlanta, Ga., November 2.

HELEN IRENE AHRENS to Mr. Roy Carey, both of Portland, Ore., at Seattle, October 14.

Deaths

Albert Henry Buck, Cornwall, N. Y.; Medical Department of Columbia College, New York, 1867; clinical professor of diseases of the ear, College of Physicians and Surgeons, Columbia, 1888-1904; one of the founders and first president of the New York Otological Society; edited the first two editions of the "Reference Handbook of Medical Sciences," and author of several medical books; died, November 15, aged 80, from senility.

Sylvester Daniel Fox, St. Louis; Beaumont Hospital Medical College, St. Louis, 1898; member of the Missouri State Medical Association; on the staff of the St. Louis City Hospital; served in the M. C., U. S. Army, during the World War; aged 46; died, November 12, at U. S. Public Health Service Hospital No. 35, from pleurisy.

Grahame D. Johnson, Reading, Pa.; Medical School of Harvard University, Boston, 1896; aged 57; for sometime a patient in the Pennsylvania Hospital for Mental Diseases, Philadelphia; his body was found, weighted with bricks, in the Schuylkill River at Philadelphia, November 11; presumably a suicide.

Adelaide E. Merritt Hunt, Providence, R. I.; New York Medical College and Hospital for Women, Homeopathic, New York, 1878; died, October 24, aged 78, at the State Hospital, Scranton, Pa., as the result of exposure and lack of food, while lost in the mountains west of Scranton.

George A. Still, Kirksville, Mo.; Northwestern University Medical School, Chicago, 1904; president and professor of surgery of the American School of Osteopathy; aged 40; was accidentally shot and instantly killed, November 24, while showing his revolver to some friends.

Thomas William Pallister Flinn, Halifax, N. S.; Bellevue Hospital Medical College, New York, 1874; United States immigration medical officer for the Port of Halifax; formerly assistant inspector for the New York State Board of Health; died, November 9, aged 72.

Arthur Magill Buchanan, McColl, S. C.; University of the South Medical Department (Sewanee Medical College), Sewanee, Tenn., 1904; member of the Tennessee State Medical Association; died suddenly, November 5, aged 41, from acute dilatation of the heart.

John Joseph Twohey ✱ Buffalo; Niagara University Medical Department, Buffalo, 1888; member of the American Psychiatric Association; medical superintendent of the Providence Retreat; aged 61; died, October 29, from uremia and chronic nephritis.

Frank Meagher Boyle, Anchorage, Alaska; Medico-Chirurgical Faculty of Philadelphia, 1895; formerly member of the state legislature; founded hospitals in Valdez and Anchorage; aged 49; died, November 7, at the Meadows Sanatorium, Seattle.

Elchana Gardner Ford, Troy, Ala. (licensed, Alabama, 1878); member of the Medical Association of Alabama; Confederate veteran; aged 81; died, November 3, at the home of his son in Bradleyton, from mitral insufficiency.

John N. Records, Franklin, Ind.; Medical Department, University of Louisville, Ky., 1894; member of the Indiana State Medical Association; formerly postmaster of Franklin; died, November 14, aged 60, from chronic nephritis.

Jesse Eugene Thomson ✱ Rutland, Vt.; Medical Department of the University of the City of New York, 1878; formerly member of the state legislature; aged 69; died suddenly, November 12, from heart disease.

Luther Denison Harrison, Clarksdale, Miss.; Medical College of Ohio, Cincinnati, 1875; member of the Mississippi State Medical Association; formerly county and city health officer; aged 68; died, November 8.

Russell Bigler Armor, Pittsburgh; Hahnemann Medical College and Hospital of Philadelphia, 1898; served in the M. C., U. S. Army, with rank of captain, during the World War; aged 47; died, October 12.

Warren Frederick Brown ✱ Tacoma, Wash.; Bellevue Hospital Medical College, New York, 1889; aged 63; died, November 9, from the results of a motor accident from which he had never entirely recovered.

Joseph M. Stuart, Owensboro, Ky.; Medical Department, University of Louisville, Louisville, Ky., 1888; member of the Kentucky State Medical Association; died, November 9, aged 59, from heart disease.

Georgia Merriman, Bucyrus, Ohio; New York Medical College of Hospital for Women, Homeopathic, New York, 1873; died, November 5, aged 78, at the Home for the Aged, Columbus, from senility.

Robert James McGay, New York; Medical Department of Columbia College, New York, 1868; formerly head of the Northwestern Dispensary; died, November 15, aged 79, from pneumonia.

Virgil A. Walden, Bethpage, Tenn.; University of the South Medical Department (Sewanee Medical College), Sewanee, Tenn., 1898; died suddenly, November 10, aged 50, from heart disease.

Garnet L. Hunter, Westfield, N. Y.; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1898; member of the Medical Society of New York; aged 49; died, November 8.

William Aerions Quigley, Hawarden, Iowa; Rush Medical College, Chicago, 1880; formerly postmaster; aged 65; was found dead in his office, November 11, from heart disease.

J. F. D. Fontaine, Maniwaki, Que., Canada; University of Montreal Faculty of Medicine, Montreal, Que., 1887; died, October 14, aged 60, at Ottawa, Ont., from paralysis.

John L. Ray, Burnsville, N. C.; College of Physicians and Surgeons, Baltimore, 1887; aged 61; died, October 27, from injuries received when he fell from his barn loft.

Wilber Pray Safford, Brockton, Mass.; Dartmouth Medical School, Hanover, N. H., 1892; member of the Massachusetts Medical Society; aged 67; died, November 16.

William Erwin Dozier ✱ Susanville, Calif.; University of Virginia Department of Medicine, Charlottesville, Va., 1883; aged 58; died, November 9, from pneumonia.

Augustus Frank Miller, Batavia, N. Y.; University of Buffalo Department of Medicine, 1878; aged 64; died suddenly in his office, November 9, from heart disease.

E. J. Barr, Lima, Ohio; Medical College of Ohio, Cincinnati, 1880; formerly sheriff of Allen County; died suddenly, October 22, aged 65, from angina pectoris.

Joseph Pressly Lyle, Toledo, Ohio (licensed, Ohio, 1896); died, November 8, in the Robinwood Hospital, aged 72, from cerebral hemorrhage, following a fall.

James A. Dickinson, Washington, D. C.; Howard University, School of Medicine, Washington, D. C., 1889; Civil War veteran; aged 74; died, November 11.

Jonathan Beadmore Hammersley, Springfield, Mass.; American Eclectic Medical College, Cincinnati, 1888; aged 91; died, November 12, from senility.

Howard Parker Mansfield, Ridgefield, Conn.; Long Island College Hospital, Brooklyn, 1893; aged 59; died, November 16, from cirrhosis of the liver.

Francis Joseph Lammer ✱ Philadelphia; Medico-Chirurgical College of Philadelphia, 1898; died, November 13, aged 58, following a long illness.

James Arthur Jackson, South Levonia, N. Y.; University of Buffalo Department of Medicine, 1895; died, November 15, aged 54, at Dansville.

Clifton O. Champion, Mooresboro, N. C.; Atlanta Medical College, Atlanta, Ga., 1887; died, November 2, from heart disease, aged 60.

Francis A. Kirch, Toledo, Ohio; Cleveland Medical College, Homeopathic, Cleveland, 1895; died suddenly, November 5, aged 81.

Ossian Crockett, Nashville, Tenn.; University of Nashville, Medical Department, 1887; also a druggist; died, November 5, aged 57.

W. H. Carlisle, Antlers, Okla.; Louisville Medical College, Louisville, Ky., 1872; died, October 23, aged 80, from paralysis.

George C. Sweeney, Grand Chenier, La. (licensed, years of practice); died, November 6, aged 71, from acute gastroenteritis.

Lewis E. Parks, Bussey, Iowa; College of Physicians and Surgeons, Keokuk, Iowa, 1880; died, October 4, aged 67.

Samuel H. Starbuck, Seattle; Cincinnati College of Medicine and Surgery, 1898; died, September 28, aged 61.

R. C. Carr, Foster Mills, Ga. (licensed, Georgia, 1892); died, October 17, aged 80, from cerebral hemorrhage.

Marshall Beaty, Cincinnati; Jefferson Medical College, Philadelphia, 1877; aged 70; died, November 14.

✱ Indicates "Fellow" of the American Medical Association.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

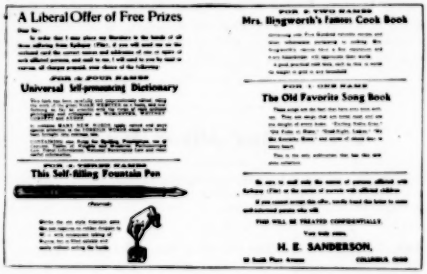
GETTING A "SUCKER LIST" OF EPILEPTICS

How the Converse Treatment Company Gets in Touch with Its Victims

The fact that some physicians, in addition to practicing medicine, also hold some civic office, is probably responsible for bringing to the attention of THE JOURNAL one of the crude tricks of a "patent medicine" concern. The Converse Treatment Company, Columbus, Ohio, sell, on the mail-order plan, an alleged cure for epilepsy. The "company," according to the letterhead, has the following men connected with it:

Herbert E. Sanderson	Frank J. Dawson
Nathan Dawson	Edgar J. Martin, M.D.

Sanderson is, apparently, the head of the outfit and, it is said, has been in the "patent medicine" business for forty years. Nathan Dawson appears to be a lawyer, while Frank


A Liberal Offer of Free Prizes

Universal Self-pronouncing Dictionary

This Self-filling Fountain Pen

Mrs. Illingworth's Famous Cook Book

The Old Favorite Song Book

H. E. SANDERSON,

Photographic reproduction (greatly reduced) of a two-page leaflet sent out by Sanderson of the Converse Treatment Co., in an effort to obtain a "sucker list" of epileptics. The "mayor," "president of the city council" or "justice of the peace" to whom these leaflets are sent is offered trivial bribes for the names of sufferers from epilepsy.

J. Dawson, it is said, is, or was, in the fire insurance business. Edgar J. Martin, M.D., is described on the Converse letterhead as "Medical Referee." According to our records, Martin was born in 1868; was graduated by the Medical College of Ohio, Cincinnati, in 1889 and specializes in gynecology. Martin is a member of the Columbus Academy of Medicine,[1] and, by virtue of that membership, has qualified as a Fellow of the American Medical Association.

The Converse Treatment has already been dealt with in THE JOURNAL. The product was analyzed in 1915 by the A. M. A. Chemical Laboratory. The matter has been reprinted in easily available form in the pamphlet, "Epilepsy Cures and Treatments" (15 cents), issued by the Propaganda Department. It is not necessary at this time to go into this phase of the subject in greater detail than to quote the conclusions of the A. M. A. Chemical Laboratory in its report on the product. These conclusions were:

"Essentially each 100 c.c. of the ["Converse Treatment"] solution contains about 7.3 gm. ammonium bromid, 5 gm. calcium bromid and 8.7 gm. potassium bromid. Calculating from the bromid determination, each dose, 1 teaspoonful (1 fluidram), contains the equivalent of 14.5 grains of potassium bromid, or each daily dose (4 teaspoonfuls) corresponds to 58.0 gr. potassium bromid."

The phase of the business to be dealt with in this article is the method employed by the Converse Treatment Company for getting its list of prospective victims. A two-page leaflet (reproduced in miniature with this article) is mailed to individuals holding civic office in small towns. The "President of the City Council," the "Justice of the Peace" and the "Mayor" are some of the persons addressed. The matter is mailed in an envelope bearing the return address "30 Smith Place Ave., Columbus, Ohio." The advertising leaflet is signed, as will be noticed, "H. E. Sanderson." Enclosed with the leaflet is a postal card addressed "Mr. H. E. Sanderson, 30 Smith Place Ave., Columbus, Ohio." On the reverse side of the card is a serial number and statement "The number on the postal indicates your name. You need not sign." Then there is space for the names and addresses of the victims of epilepsy or their guardians.

Sanderson offers certain premiums for the names of prospective victims: For four names he will send a dictionary; for three names, a fountain pen; for two names, a cook book, and for one name, a song book!

1. After this matter was in type, it was brought to the attention of the Ohio State Medical Association, which, in turn, took up the matter with the Columbus Academy of Medicine. A communication from the executive secretary of the Ohio State Medical Association, just received, states that, at a meeting of the Council of the Columbus Academy of Medicine on November 23, the resignation from membership of Dr. Edgar J. Martin was submitted and accepted. On November 25 a letter was received from Dr. Martin addressed to the American Medical Association and stating that he could not "consent to any interference" with his "private practice" and tendering his resignation.

MORE MISBRANDED NOSTRUMS

Abstracts of Recent Notices of Judgment Issued by the Bureau of Chemistry of the United States Department of Agriculture

Simmons' Cough Sirup.—The A. B. Richards Medicine Co., Sherman, Texas, in February, 1920, and January, 1921, shipped a quantity of "Simmons' Cough Sirup" to California which was misbranded. Analysis showed the product to consist essentially of ammonium chlorid, glycerin, chloroform, vegetable extracts, alcohol, sugar and water, flavored with anise. It was falsely and fraudulently recommended for consumption, whooping cough, influenza, sore throat, asthma, bronchitis and bronchial affections. In August, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9977; issued March 21, 1922.*]

Hobbs' Nerve Pills.—A quantity of "Dr. Hobbs' Nerve Pills" was shipped by the Hobbs Spanish-American Medicine Company, Chicago, in November, 1919, from Illinois to California. When analyzed by the Bureau of Chemistry, the pills were found to consist essentially of powdered iron, quinin, licorice, starch and traces of arsenic and strychnin. The product was falsely and fraudulently labeled a "blood purifier" and a remedy for neuralgia, palpitation of the heart and female disorders, and as a cure for rheumatism and a "food for fagged brains." In August, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 9985; issued March 21, 1922.*]

Mando Tablets.—Gracey's Drug Store, Philadelphia, shipped in August, 1920, some "Mando Tablets" from Pennsylvania to New Jersey. When analyzed by the federal chemists, the pills were found to contain extracts of nux vomica and damiana. The pills were falsely and fraudulently sold for the cure of "Nervous Debility," "Lost Vitality," "Varicocele," and "Seminal Weakness." In January, 1922, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 10209; issued May 16, 1922.*]

Castleberry's Sexual Pills and Fackler's Compound Extract of Damiana.—This product was alleged to have been shipped by the Allan-Pfeiffer Chemical Co., St. Louis, the shipment being made in June, 1921, from Missouri to Georgia.

Castleberry's Sexual Pills.—The federal chemists reported that these pills contained an iron compound, extracts of Spanish fly and nux vomica, chalk and sugar. They were falsely and fraudulently labeled as remedies for hysteria, nervous prostration, and general weakness.

Fackler's Compound Extract of Damiana.—This preparation, the federal chemists reported, contained extract of plant

drugs, including nux vomica, damiana and saw palmetto and also extract of Spanish fly, sugar, alcohol and water. It was falsely and fraudulently labeled as a tonic for both sexes, "A Liquid Aphrodisiac" and as "Useful in Nervous Debility."

In December, 1921, judgments of condemnation and forfeiture were entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 10243; issued May 16, 1922.*]

Correspondence

"HEMOLYSIS FOLLOWING TRANSFUSION"

To the Editor:—After reading the article by Dr. P. S. Astrowe on "Hemolysis Following Transfusion" (THE JOURNAL, Oct. 28, 1922, p. 1511), I referred to my notes written before the war. They disclosed that I had performed agglutination and hemolysis tests similar to if not exactly the same as those described. The only difference was that the hemolysis test was left in the icebox over night. There was no agglutination and no hemolysis. After the transfusion, when the performance of a second transfusion was considered, the surgeon asked me again to test out the previous donor and recipient, both of whom were adults: This was done and there was no agglutination, but the recipient's serum hemolyzed the donor's cells.

Because of the positive statements made by men in the conservative East, no mention was made except to the surgeon, who did not do the second transfusion.

Under "Transfusion of Blood," U. S. Army Memo. 12, A. E. F., Blood Groups, is the statement (p. 11): "Hemolysis never occurs when agglutination is absent; hence the agglutinative reaction determines the possibility of hemolysis." It seems that these statements are too sweeping.

P. C. WEST, M.D., Seattle.

"DENY" IN CASE REPORTS: A MUCH NEEDED CRITICISM

To the Editor:—Until recently, physicians taking histories have permitted patients to state facts regarding their previous ailments and ills, without being especially incredulous if the patients' assertions referred to some such ordinary disease as chickenpox or measles. According to the usual case history which one reads nowadays, the patient is never permitted merely to say he has never had a venereal disease, but he must perforce "deny" such a thing.

Webster's Collegiate Dictionary defines "deny" as follows: (1) To declare not to be true; (2) contradict; (3) to reject as a false conception; (4) to refuse to grant or gratify (as a request); (5) to refuse to accept. It is apparent, therefore, that in order to deny something, (1) some one must have declared it to be true; (2) or an assertion must have been made which had to be contradicted; (3) or, at least, one must have formed and expressed a definite opinion which had to be refuted by denial; (4) or else, in the connection to which I refer, the patient is inconsiderate enough not to grant the physician's request that he have venereal disease, presumably for the physician's gratification in unearthing it; (5) or he denies himself the privilege of venereal disease.

The mental picture which is therefore conjured by this commonly used phrase ("the patient denied having had venereal diseases") is that of a frowning, fist-shaking, medical individual thunderingly accusing some cringing creature of having been steeped in vice. The patient may "deny" this if he likes, but one always has one's own opinion, like Mr. Pickwick, who "knew all and suspected the rest."

According to the current issue of THE JOURNAL (Nov. 25, 1922) the human race is becoming more and more secretive, and it is now necessary to apply "third degree" methods to elicit information not only regarding the "social" (!) diseases but also on any subject that might not be tea-table talk. For example, on page 1841 we are told of a German saloonkeeper who complained of enlarged abdomen. Because he was German, and a saloonkeeper, it is presumed that he might rightly be suspected of almost anything; but he promptly "denied" not only venereal diseases but even "all acute infectious diseases." Baffled, one turns to the German's wife, who in turn had a denial to make, this being that she "denied any miscarriages." It is stated as a positive fact, however, that the man is the father of a grown son, there being no question as to his veracity in this occasionally doubtful matter.

On the same page of THE JOURNAL there appears the history of a man who denies "any venereal disease or unusual sexual practices." Unless the authors originally believed otherwise and so expressed themselves to the patient, their use of this word is incorrect.

I am presenting the foregoing in order to protest against the loose use in manuscripts of the word "deny." According to the quoted definitions of the word, such usage is wrong unless the examining physician actually believes the patient to have had something which the latter may now deny.

Without wishing to seem a purist, I must say that it always arouses in me a feeling of resentment in favor of the patient who is compelled to "deny venereal diseases," while the doubt as to whether or not he is telling the truth is always left in one's mind by this obnoxious little verb.

PAUL TITUS, M.D., Pittsburgh.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PREVENTION AND TREATMENT OF COMMON COLDS

To the Editor:—I am anxious to get in touch with anything bearing on the treatment of the "common cold" (acute coryza), especially in children. We are in the habit of saying that nothing can be done for a cold in the head; but I am meeting this condition so constantly, and it is the cause of so much real discomfort, not to mention its dangerous potentialities, that I want to get hold of something tangible in the way of a technic, both preventive and curative. F. H. R., New York.

ANSWER.—There is no sure way of preventing an acute cold in children or adults. Much may be accomplished, however, by attention to minor details. One should dress so as to be warm. This does not imply wearing such heavy flannel underclothing as to keep the body damp with sweat when indoors. One should avoid wet feet, and not sit in drafts, especially when tired or "rundown." An evening at the movies in a crowded room that is poorly ventilated will often result in a cold, particularly if the feet are damp, if the overcoat is kept on, and one is tired to begin with. Then much can be done by seeing that the child, or the adult, gets fresh air at night and is outdoors in the daytime as much as possible, even in cold and perhaps unpleasant weather. Cool baths in the morning help materially in the hardening process that enables one to resist the infection that would otherwise result in a coryza. Offending adenoids and tonsils should be removed, and the sinuses about the nose kept in as good condition as possible. By these simple or common sense methods alone, a large proportion of common colds may be avoided.

The active treatment of the simpler cases is largely one of ordinary care, little medicine being required. The patient should stay at home a day or two, preferably in bed, take light food, and empty the bowels thoroughly. A hot foot bath, hot lemonade and warm blankets may be helpful. Perhaps a dose of powder of ipecac and opium, U. S. P. (the old fashioned Dover's powder) will be in order. Sprays to the nose, and gargles or sprays to the throat may be of benefit. Each physician has his favorite preparation. The good, we believe, is largely from the cleansing effect. Physiologic sodium chlorid solution has perhaps as much virtue

as any other. Many give salicylates freely for a day or two. We think they are helpful. And the combination of camphor, quinin and Dover's powder with perhaps belladonna is used by many who have found it useful.

Because many people ignore a cold in the head, do not give up to it and come through all right is no argument for the neglect of this seemingly trifling ailment. Rest at home for a day or two with simple treatment undoubtedly saves many a patient from severer forms of inflammation in the nose and sinuses, from bronchitis and pneumonia and possibly even from more serious conditions.

I. W. LONG AND D. V. IRELAND

To the Editor:—Almost daily for the past two weeks my mail has included a letter or printed circulars purporting to come from one I. W. Long, Columbus, Ohio. These communications all relate, in one form or another, to a course of lectures and clinical demonstrations of diseases of the colon, rectum and adjacent organs, the same to be delivered in Kansas City and Chicago. The lecturer is to be D. V. Ireland, M.D., Columbus, Ohio. The price for the course is $100.

Can you inform me concerning this Dr. D. V. Ireland? Who is he, and what is his professional history and standing? Inasmuch as he is seeking his pupils from among the ranks of the profession on the assumed basis of superior skill and knowledge, I think it is your duty as the publicity organ of the A. M. A. to give him a very helpful degree of publicity in an appropriate manner. When any man sets himself the task of doing the practitioner a service to the tune of $100 per service, we should be fully informed concerning the quality of his service and his professional attainments. We do not wish to miss anything of real merit nor do we care to be exploited.

P. P. HALLECK, M.D., Durham, Kansas.

ANSWER.—I. W. Long seems to make a business of promoting the activities of those members of the medical profession who have sensational or bizarre theories to exploit and who wish to commercialize these theories. Long also seems to act as an agent for the sale of such devices and publications as may be necessary to the proper practice of the particular brand of therapy that is being exploited. Long has acted as publicity agent for courses in "Electrotherapy" by C. L. Ireland, in "Diseases of the Rectum" by D. V. Ireland, in "Zone Therapy" by W. H. Fitzgerald, in "Bio-Dynamo-Chromatic Diagnosis" by George Starr White, in "Spondylotherapy" by Albert Abrams, etc. He has also sold "abdominal supporters" books on osteopathy, devices for performing stunts in "Zone Therapy," a chart advertised as "A Key to the Practice of Osteopathy, Chiropractic, Massage and All Drugless Methods" and many other things.

According to our records, D. V. Ireland was born in 1855 and was graduated by a homeopathic school in 1881—forty-one years ago. He seems to have practiced exclusively in Ohio and to have stayed but a few years in each town. The medical directories record:

1886—Mansfield, O.	1906—London, O.
1890—Xenia, O.	1908—Columbus, O.
1893—Fredericktown, O.	1910—London, O.
1896—Mt. Sterling, O.	1914—Chillicothe, O.
1900—London, O.	1916—Wilmington, O.
1902—Dayton, O.	1918—Columbus, O.

A study of the medical literature of importance for many years past fails to show that D. V. Ireland has published anything. He is not, and never has been, so far as our records show, a member of his local society.

DIPHTHERIA ANTITOXIN IN TONSILLITIS

To the Editor:—1. Is there any deleterious effect in giving diphtheria antitoxin in a case of tonsillitis? 2. Does the giving of antitoxin to tonsillitis patients shorten the course of the disease? 3. If a prophylactic dose of antitoxin has been given, and the patient within from three to twenty days develops diphtheria, is there any danger in giving a therapeutic injection of antitoxin, from 5,000 to 10,000 units? Please omit my name. G. S. A., Iowa.

ANSWER.—1. No.
2. Probably not.
3. No, unless the second injection is given intravenously.

Location of Tuberculosis Hospital.—The Louisiana supreme court decided that the establishment of a tuberculosis hospital in the city is not a menace to health. In a suit to enjoin the city of New Orleans from establishing and maintaining a tuberculosis hospital in the city, one of the objections of the plaintiffs, who lived in the vicinity of the proposed site, was that the hospital would endanger their health. The supreme court of Louisiana did not take this view.—*Pub. Health Rep.* **34**:1977 (Aug. 29) 1919.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 9. Chairman, Dr. Samuel W. Welch, Montgomery.
ARIZONA: Phoenix, Jan. 2. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.
COLORADO: Denver, Jan. 2. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
DELAWARE: Wilmington, Dec. 12-14. Sec., Dr. P. S. Downs, Dover.
DISTRICT OF COLUMBIA: Washington, Jan. 9. Sec., Dr. Edgar P. Copeland, Stoneleigh Court, Washington.
HAWAII: Honolulu, Jan. 8. Sec., Dr. G. C. Milnor, 401 Beretania St., Honolulu.
ILLINOIS: Chicago, Jan. 9-11. Supt. of Registration, Mr. V. C. Michels, Springfield.
INDIANA: Indianapolis, Jan. 9. Sec., Dr. W. T. Gott, Crawfordsville.
KENTUCKY: Louisville, Dec. 5-7. Sec., Dr. A. T. McCormack, State Board of Health Bldg., Louisville.
LOUISIANA: New Orleans, Dec. 7-9. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.
MARYLAND: Baltimore, Dec. 12. Sec., Dr. J. McP. Scott, 141 W. Washington St., Hagerstown.
MINNESOTA: Minneapolis, Jan. 2-4. Sec., Dr. Thomas S. McDavitt, 539 Lowry Bldg., St. Paul.
NEW MEXICO: Santa Fe, Jan. 8-9. Sec., Dr. R. E. McBride, Las Cruces.
NORTH CAROLINA: Durham, Dec. 12. Sec., Dr. Kemp P. B. Bonner, Raleigh.
NORTH DAKOTA: Grand Forks, Jan. 1. Sec., Dr. G. M. Williamson, 860 Belmont Ave., Grand Forks.
OHIO: Columbus, Dec. 6-8. Sec., Dr. H. M. Platter, Hartman Hotel Bldg., Columbus.
OKLAHOMA: Oklahoma City, Jan. 9-10. Sec., Dr. J. M. Byrum, Shawnee.
RHODE ISLAND: Providence, Jan. 4-5. Sec., Dr. Byron U. Richards, State House, Providence.
SOUTH DAKOTA: Pierre, Jan. 6. Director, Dr. H. R. Kenaston, Bonesteel.
VIRGINIA: Richmond, Dec. 5-8. Sec., Dr. J. W. Preston, McBain Bldg., Roanoke.
WEST VIRGINIA: Charleston, Jan. 9. State Health Commissioner, Dr. W. S. Henshaw, Charleston.
WISCONSIN: Madison, Jan. 9-11. Sec., Dr. John M. Dodd, 220 E. Second St., Ashland.

Arkansas May Examination

Dr. Claude E. Laws, secretary, Arkansas Eclectic Board of Medical Examiners, reports the written examination, held at Little Rock, May 9-10, 1922. The examination covered 12 subjects and included 120 questions. An average of 75 per cent. was required to pass. Sixteen candidates were examined, all of whom passed. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
Eclectic Medical University	(1918)	91.5
Kansas City College of Medicine and Surgery	(1916)	89.5,
	(1922)	78.5, 78.4, 79.1, 79.6, 79.9, 81.2, 81.3, 81.7, 81.8, 83.3, 84.4, 85.6, 91.9
Eclectic Medical College	(1922)	85.6

South Carolina June Examination

Dr. A. Earle Boozer, secretary, South Carolina State Board of Medical Examiners, reports the written and practical examination held at Columbia, June 27-29, 1922. The examination covered 17 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 19 candidates examined, 18 passed and 1 failed. One candidate received an osteopath license by examination. Four candidates were licensed by reciprocity. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
Emory University	(1915)	78.6
University of Michigan Homeopathic Medical School	(1922)	90.4
Jefferson Medical College	(1922)	85.2, 85.2, 89.6
Medical College of the State of South Carolina	(1921)	87.5, 89.2,
	(1922)	81.2, 81.5, 83.2, 83.5, 84.5, 85.4, 85.6, 87.2, 88.9, 89.2, 90.2, 92.1
Osteopath		82.6

FAILED College	Year Grad.	Reciprocity with
University of Tennessee	(1905)	*

LICENSED BY RECIPROCITY College	Year Grad.	Reciprocity with
University of Georgia	(1900), (1911)	Georgia
Tulane University	(1921)	Louisiana
Johns Hopkins University	(1920)	Maryland

* No grade given.

Book Notices

THE OXFORD INDEX OF THERAPEUTICS. Edited by Victor E. Sorapure, M.B., Ch.B., F.R.C.S. Cloth. Price, $12. Pp. 1126, with 111 illustrations. New York: Oxford University Press, 1921.

This book represents the views of about 100 English and American contributors. In Part One, the various diseases are discussed in alphabetical order, with a consideration of the method of treatment; in Part Two, the agents used in therapeutics are listed, with the dosages and indications, the preparations being taken, the authors announce, from the British and American pharmacopeias and the National Formulary, and from the catalogues of several pharmaceutic manufacturers. In Part Three, drugs are classified in groups, according to their general uses. The volume represented a conglomeration of great unevenness. Some of the articles are excellent; others appear to have been hastily compiled. Many of the prescriptions are simple and satisfactory; others include numerous ingredients and are of the "shotgun" type. Many include secret proprietary preparations. When the scientific writers on therapeutics obtain information regarding the therapeutics of drugs from catalogues of pharmaceutic manufacturers, the remainder of their material must certainly be questioned. It is stated, for example, that Elixir Lacto-Peptine contains all the active enzymes of digestion and in practice is found to be active and efficient. This opinion will hardly be accepted by well educated American physicians. Such books as Sorapure's Oxford Index of Therapeutics are no longer printed by American publishers; the unclassified, uneven guide to uncritical therapeutics has little American appeal.

OBSTETRICS FOR NURSES. By Joseph B. De Lee, A.M., M.D., Professor of Obstetrics at the Northwestern University Medical School. Sixth edition. Cloth. Price, $3 net. Pp. 525, with 244 illustrations. Philadelphia: W. B. Saunders Company, 1922.

In the sixth edition of a textbook, we expect to find the highest degree of literary and scholastic excellence. We expect all circumlocutions and English solecisms to be eliminated, and the best medical doctrine to be upheld consistently. In this volume, these high ideals are not altogether achieved. The English is often faulty, as on page 18, line 10, where the auxiliary lacks its verb, and on page 267, line 4, where the verb lacks its auxiliary. The meaning, too, is sometimes obscure, as on page 68, in the sentence, "No surgeon tolerates such conditions." We suppose that the general surgeon is meant, but the phrase implies that the obstetrician is not a surgeon. On page 68 the author states that "icterus has several causes, but the exact nature is not known." It would seem that if any one cause were known, it would be highly enlightening. On page 84, the word "warning" is used when advising is evidently meant, and on page 119, "curing" is made to act for relieving. Not many obstetricians will indorse the author's constant advocacy of strong solutions of mercuric chlorid, and very few would agree to have the entire chain of asepsis broken by using a filthy daily newspaper in place of a sterile napkin (page 177) for the sake of economy in the nursery. There are also occasional errors in balance, as when the author devotes eleven pages to cesarean section, in which apparently he is much interested, and makes no mention whatever of impetigo or multiple abscess, which come more nearly into the daily work of the nurse. Some anachronisms are cherished unduly. The tight binder for engorged breasts has long ago been abandoned as useless and unnecessary. The iteration of the midwifely tradition (pages 369 and 341) that "tongue-tie" interferes with nursing is surely an oversight. It has been shown by the physiologists that "tongue-tie," if there is such a thing, can have no influence on nursing, since the act of suckling is performed entirely by the masseter muscles without lingual participation. The author apparently advises (page 139) the neutralization of both the 1 per cent. and the 2 per cent. solution of silver nitrate. If the 1 per cent. solution is neutralized, it is valueless; and if the 2 per cent. solution is not neutralized, the cornea may be injured. This distinction should be made clear. On page 375 is pictured what is said to be the author's modification of Byrd's method of artificial respiration. The illustrations do not show any difference between this method and the modification brought out by Dew thirty years ago. The four hour nursing interval is spoken of (page 412) as the "optimum period, even from birth." Assuming the sincerity of the conviction, it seems queer that the Lying-In Hospital should choose, up to the fifth week, to make the interval from three to three and one-half hours, as shown by the table on the same page. The word optimum, too, which is used so easily by the author, might be less familiar to a student nurse whose Latin had slipped a little. Yet the vocabulary, which has exhaustive definitions of such rare terms as enema, binder, dilute and eliminate, does not mention optimum. These citations may seem hypercritical, but they are not—for a sixth edition. Doubtless we are unduly particular; for, on the whole, the body of the doctrine is fairly good. The book presents quite fully the ideas and methods that are recognized, practiced and taught everywhere by competent technicians.

THE PRACTICE OF MEDICINE. By A. A. Stevens, A.M., M.D., Professor of Applied Therapeutics in the University of Pennsylvania. Cloth. Price, $7.50. Pp. 1106, with 36 illustrations. Philadelphia: W. B. Saunders Company, 1922.

This work resembles other textbooks on the practice of medicine in its arrangement and general plan. The reader is impressed first, however, by the condensation of the information. The sentences are brief and to the point, and there is little of the embellishment which too often appears in some textbooks. In virtually all instances, the facts are up to date. The references to periodical literature are presented, however, in an incomplete, inconsistent form. Many of the references consist merely of the name of the periodical, month and year, some of the name and volume, some of the volume and page. If a bibliography is to be presented to students, it should follow some systematic and accurate form. In his discussions on therapeutics, the author is modern in that he follows established guides as to useful drugs. However, he sometimes suggests proprietary drugs without giving sufficient information for identification of their actual character. In the treatment of mercuric chlorid poisoning, nothing is said of the recently advocated methods involving the encouraging of elimination by sweating and the giving of large quantities of fluids. In the section on the treatment of gastric ulcer, the advice as to diet is incomplete and unsatisfactory. The reader must refer elsewhere for adequate descriptions. On the whole, the chief value of this book lies in its concise presentation of the material it contains.

DIE NEUROLOGISCHE FORSCHUNGSRICHTUNG IN DER PSYCHOPATHOLOGIE UND ANDERE AUFSÄTZE. Von Dr. A. Pick, Professor an der deutschen Universität in Prag. Paper. Price, 48 marks. Pp. 247, with 11 illustrations. Berlin: S. Karger, 1921.

This pamphlet is No. 13 of a series of monographs which appear as supplements to the *Monatsschrift für Psychiatrie und Neurologie*, published by the same firm and edited by Bonhoeffer. There are eight articles by Pick, the one named in the title being the longest. Most of the others deal with phases of the aphasia problem. The author is one of the most learned psychiatrists of Europe, with a philosophical turn of mind and also possessed of a thorough knowledge of organic brain disease. Physicians interested in the more theoretical aspects of neurology will profit by reading these essays.

THE CAUSES OF HEART FAILURE. By William Henry Robey, Assistant Professor of Medicine in Harvard University. Cloth. Price, $1. Pp. 45. Cambridge: Harvard University Press, 1922.

It is difficult to write on a medical subject in a manner that is at the same time scientific and popular. The writer must put himself in the place of the layman, must sense his intellectual needs and supply the knowledge that meets these wants, and no more. Too often, as in this book, scientific facts or technical matters, correct in themselves, are referred to in such a way as to bewilder. What is said in this little volume seems to us true—except the statement that there is one main trunk of the coronary artery. What is needed is a liberal pruning of confusing details, a rewriting of some obscure sentences, and a more intensive stressing of the few important facts that should be firmly fixed in the mind of

the lay reader. The statement of the publisher's blurb that heart disease is preventable by early recognition of its causes is only partially true. But the public should know what may be done to prevent this disease, what may be its effects when it occurs, and how the day of serious results may be postponed. We believe this story could be more simply and effectively told in 6,000 words than has been done here.

Medicolegal

Malpractice Found in Treatment After Miscarriage

(Kruger v. Bossingham (Minn.), 188 N. W. R. 324)

The Supreme Court of Minnesota says that, in this case of alleged malpractice causing death, the complaint was construed to allege negligence in the discharge of professional duties subsequent to the day the defendant went to attend the plaintiff's wife after her miscarriage as well as on that day, when she had a few hours before been delivered of a four-months fetus. The pivotal facts were in sharp dispute. The plaintiff maintained that the defendant was then told that the placenta had not been expelled. The defendant contended that when he inquired concerning the matter, he was informed that it had been expelled, and had been thrown away. Again, the plaintiff testified that, some days later, he went to town and told the defendant that Mrs. Kruger had severe hemorrhages, chills, and headaches; that he was given some pills for her use and assured that she would be well directly; that a day or so after that he again sought the defendant and told him conditions were not improved; that he was again put off with the statement that she would be well in a few days. The defendant's testimony was that, as he casually met the plaintiff on the street, he inquired concerning Mrs. Kruger, and was informed that she was doing nicely. On the twelfth day after that of the miscarriage, Mrs. Kruger's condition became alarming, and the defendant was sought, but was away. Another physician was then called in. Six days later, the patient was taken to a hospital, where decomposed parts of the placenta were removed. After the first ten days, there was an improvement; then came a turn for the worse, and death followed on the thirty-fourth day after the miscarriage. Medical experts for the plaintiff attributed the death to anemia and blood poisoning caused by the presence of parts of the placenta in the uterus; while those for the defendant ventured the opinion that death was not from such cause, but from embolism. The plaintiff recovered a verdict, and the court, without stating the amount of the verdict, says that it is unable to find any legal ground for disturbing such verdict, approved as it was by the trial court.

The important question in the appeal was whether the evidence supported the verdict, or, in other words, was the jury authorized to find that the defendant did not exercise professional judgment in the treatment of the case, and, if he did not, was his failure so to do the proximate cause of death? Of course, if the jury had accepted the defendant's contention that he was told the placenta had been expelled and that the information he had after his visit was that Mrs. Kruger was doing well, there could have been no basis for a verdict against him. But the jury could find that the defendant was told that the placenta had not been expelled when he was there; also, that, a few days thereafter, he was informed on two occasions of conditions that called for treatment or action on his part; and the consensus of expert opinion seemed to be that, if the defendant knew or was told that the placenta had not been expelled, his duty toward the patient required him to keep close watch of her condition so as to be ready to give proper care if unfavorable symptoms appeared; and that hemorrhages, chills, and headaches were such symptoms. The jury could well find, too, that the part of the placenta that remained after the miscarriage caused the hemorrhages and consequent anemia which was a contributing cause of death. There was also room for a finding that infection existed in some form previous to the time that the other physician was called in. In short, the court holds that there was evidence supporting the verdict finding the defendant negligent, and that such negligence proximately caused the patient's death. That the negligence of other physicians may also have been a contributing cause did not absolve the defendant, if his negligence was a proximate cause.

Nor did the trial court err in refusing to submit to the jury the question of contributory negligence on the part of the patient, there being no adequate proof of such negligence as a contributing cause of death. It is true a patient should follow the directions of the physician, and the defendant did testify that he told Mrs. Kruger to be more careful than in a normal case and to stay in bed; but there was no direction how long she was to stay in bed, and no expert testimony on that subject, so there was no foundation for a finding that Mrs. Kruger did any negligent act or that she failed to follow some direction which contributed to her death. The burden of proving contributory negligence was the defendant's.

Knowledge of Medical Examiner Imputed to Company—Health Clause

(New York Life Ins. Co. v. Smith (Miss.), 91 So. R. 456)

The Supreme Court of Mississippi, Division A, in affirming a judgment in favor of Mrs. Smith on a life insurance policy issued to her husband during his lifetime, says that the company's medical examiner, who examined the insured and wrote down his answers as to the condition of his health, testified on behalf of the plaintiff that, notwithstanding the fact that his report of the examination, which he turned over to the company's soliciting agent, showed that he found the insured free from any disease of the internal organs, he found a slight trace of albumin in the urine and some inflammation of the liver. This condition, the witness said, did not necessarily mean ill health, though he made a private report of it in writing to the company's medical director, which was customary under the circumstances. But it was entirely immaterial, the court holds, whether the medical examiner communicated his knowledge of the condition of health of the insured to the company, for his knowledge was the company's. A medical examiner for a life insurance company is the agent of the company in making examination of an applicant for life insurance and in recording his answers, and his knowledge thus acquired is the knowledge of the company, which is estopped from taking any advantage thereof.

The court also holds that when an application for a life insurance policy, which by its terms became a part of the contract of insurance, provides that the policy applied for should not take effect until delivered to the insured during his lifetime, "while in good health," and the evidence showed that he, although not in good health, was in the same condition of health at the time of the delivery of the policy as at the time of his application therefor, the provision in question was not violated, because it meant only that the defendant's health had not undergone any change between the date of the application for and the delivery of the policy.

Society Proceedings

COMING MEETINGS

American Physiological Society, Toronto, Canada, Dec. 28-30. Dr. Chas. W. Greene, University of Missouri, Columbia, Secretary.
Isthmian Canal Zone, Medical Association of, Ancon, Dec. 15. Dr. L. S. Chapman, Ancon, Secretary.
Philippine Islands Medical Association, Manila, Dec. 20-22, 1922. Dr. I. Concepcion, College of Medicine and Surgery, Manila, Secretary.
Porto Rico, Medical Association of, Ponce, Dec. 15-17. Dr. Augustin R. Laugier, San Juan, Secretary.
Radiological Society of North America, Detroit, Mich., Dec. 4-8. Dr. M. J. Sandborn, Appleton, Wis., Secretary.
Society of American Bacteriologists, Detroit, Dec. 27-29. Dr. A. P. Hitchens, Army Medical School, Washington, D. C., Secretary.
Southern Minnesota Medical Association Mankato, Minn., Dec. 4-5. Dr. H. T. McGuigan, Redwing, Secretary.
Southern Surgical Association, Memphis, Tenn., Dec. 12-14. Dr. H. A. Royster, Raleigh, N. C., Secretary.
Western Surgical Association, Minneapolis, Minn., Dec. 8-9. Dr. Warren A. Dennis, Hamm Building, St. Paul, Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Gynecology, St. Louis

October, 1922, 4, No. 4

*Uterus After Cesarean Section. E. P. Davis, Philadelphia.—p. 335.
*Extent of Renal Lesion in Toxemias of Pregnancy. A. B. Spalding, M. C. Shevky and T. Addis, San Francisco.—p. 350.
*Retroversions of Uterus Following Delivery. F. W. Lynch, San Francisco.—p. 362.
Clinical and Embryologic Report of an Extremely Early Tubal Pregnancy; Together with Study of Decidual Reaction, Intrauterine and Ectopic. W. A. N. Dorland, Chicago.—p. 372.
*Pathology and Treatment of Hydatidiform Mole. E. A. Schumann, Philadelphia.—p. 386.
Prolapse of Female Urethra and Eversion of External Urethral Orifice. R. R. Smith, Grand Rapids, Mich.—p. 395.
Clinical Aspects of Uterus Didelphys. N. F. Miller, Ann Arbor, Mich. —p. 398.
*Degeneration of Conserved Ovaries After Hysterectomy in Rat; Experimental Study. I. Kross, New York.—p. 408.
*Influence of Placenta on Mammary Gland. C. M. Stimson, Philadelphia. —p. 413

Uterus After Cesarean Section.—Davis has had several opportunities to examine the uterine scar after the classic cesarean section. The method of performing cesarean section in the first operation on these patients consisted in closing the uterine muscle with silk and peritoneal tissue with catgut. Women who had been examined outside of hospital, had been long in labor and brought in as emergency cases, were further treated by packing the uterus with iodoform gauze with the hope of averting serious hemorrhage and infection. This method was successful. So far as rupture of the uterus in subsequent labor is concerned, in one case the uterine muscle ruptured but the scar remained firm and was stronger than the uterine muscle. In the second case, the uterus was the site of so much fatty degeneration that extensive rupture occurred as soon as labor began. This patient was given no opportunity to recover from her previous section and she was denied the benefit of hospital care during the last month of her pregnancy. In all of these multiparas the degenerative processes which inevitably occur in multiparas without proper care in their pregnancies and labors was present, namely, fibrosis uteri and atrophy to some extent of muscular tissues. In the patient toxic at the time of operation, fibrosis and atrophy were present but in addition we have the occlusion of blood vessels by emboli and thrombi and marked round cell infiltration at the junction of the placenta and uterus. The multiple embolism in the case of a toxemic patient is an unusual but natural illustration of the pathology of toxemia.

Extent of Kidney Lesion in Pregnancy Toxemia.—A method developed at the Stanford School of Medicine which measures the amount of actively functioning renal tissue in the living kidney is based on the observation that under certain special conditions the function of the kidney is limited by, and becomes a measure of, the quantity of effective tissue it contains. These conditions comprise: first, the application of strain, so that all the functioning tissue present is called upon to exercise its maximum capacity, and, second, a constancy in the environment of the organ, so that various factors which have a specific stimulating or inhibiting effect on the functioning tissue, are excluded. Strain is applied by administering by mouth large amounts of urea and water. The second requirement is met by abstention from food and by delaying the measurements until three hours after the urea and water have been taken. Two measurements are required: first, the amount of urea excreted in one hour's urine, and, second, the amount of urea contained in 100 c.c. of blood removed at the middle of the period of urine collection. Spalding, Shevky and Addis believe the figures they have obtained justify them in emphasizing the point that the treatment of the toxemia of late pregnancy should be directed not to the relief of a supposed renal insufficiency, but to the removal of the cause of the toxemia. Therefore, if such measures as sweating and the giving of intravenous injections of alkaline solutions are indicated, it must be on the ground that they diminish the general toxemia and not that they are necessary because renal function is so depressed that the patient's life is on that account in danger. The view they provisionally take is that the renal lesion in pregnancy toxemia is important not before, but after, delivery. The danger lies not in the extent of the lesion during the acute toxemia, but in the fact that it may fail to heal, and may become a continuing and self-perpetuating disease which either alone or with the help of a complicating arterial disease may ultimately lead to the death of the patient in uremia.

Retroversions of Uterus Following Delivery.—The pelvic condition of 1,230 women who were delivered at term were examined by Lynch at intervals for a minimum of four months and a maximum of twelve months. There were no known pelvic inflammations in the series. Retrodisplacements were noted in 505 cases, or 41.1 per cent. In 32 per cent. of the 505 retropositions pelvic symptoms developed. Of 725 controls with upright uteri 10.5 per cent. complained of slight symptoms. Of 180 private patients 19.6 per cent. presented retropositions in contrast to 44.8 per cent. found in 1,044 clinic cases. Hard work may, therefore, be an important etiologic factor in retrodisplacements. Replacement of the uterus and pessary support gave anatomic correction in 72 per cent. of the cases which wore pessaries. Symptomatic cure and anatomic correction were obtained by identical procedures in 68 per cent. of the 161 cases presenting symptoms. Subsequent pregnancies were observed in 15 per cent. of a portion of the series in women who did not have displacements, in 10 per cent. of women who had treated retropositions, and 5 per cent. of women whose retroposition had not been corrected. No one type of suspension has been entirely successful in Lynch's hands. There were two recurrences in 155 operations which made a new round ligament fixation on the uterine fundus necessary (108 Webster, 31 Coffey, 16 atypical). There were four recurrences following twenty-eight Kelly-Noel suspensions, together with the shortening of the upper part of the uterosacral ligaments. The need of early correction of retropositions following labor, Lynch believes, is evident.

Hydatidiform Mole.—It seems rational to Schumann to regard every hydatid mole clinically as a malignant tumor, carrying with it a high mortality, and in consequence to attempt no half-way measures for the removal of such growths, but to extirpate them, together with the fundus of the uterus. The procedure advocated is as follows: On the diagnosis of hydatidiform mole being established, no vaginal work is done whatever. Laparotomy is performed, the uterus isolated by gauze packs and an abdominal hysterotomy is done, the mole being inspected in situ. Should it be distinctly limited in attachment to the decidua, and show none of the little hemorrhagic areas in the uterine muscularis, which bespeak invasion of the uterine wall, the tumor may be shelled out and the uterine wound closed, after the cavum has been disinfected with iodin. Should areas of invasion of uterine muscle be present, however, and this is true in the majority of cases, no attempts are made at shelling out the tumor, but an immediate supravaginal hysterectomy is performed, the only exception to this plan being in the case of a primipara desirous of family to whom the situation has been carefully explained and who is willing to assume the risks of either curettage or abdominal hysterotomy with removal of the mole by this route.

Degeneration of Conserved Ovaries After Hysterectomy.—In consideration of the numerous clinical evidences of degeneration, especially cystic, and in view of the evidences of degeneration that were almost invariably found by Kross in the ovaries of the animals studied experimentally, it seems that one may justly conclude that conservation of sound ovaries where the uterus is removed is of no avail in preventing distressing menopause symptoms. The dangers of cystic and other degenerative changes are so great that the retention of the ovaries constitutes a serious danger. Hence, it is safer to remove the ovaries in all cases in which a hysterectomy is performed.

Archives of Dermatology and Syphilology, Chicago

November, 1922, **6**, No. 5

*Experimental Aspects of Iodid and Bromid Exanthems. U. J. Wile, C. S. Wright and N. R. Smith, Ann Arbor, Mich.—p. 529.
Drug Eruptions from Clinical Aspect. F. Wise, New York, and H. J. Parkhurst, Toledo, O.—p. 542.
*Industrial Dermatitis at Massachusetts General Hospital. C. G. Lane, Boston.—p. 565.
*Procain Dermatitis Among Dentists. H. K. Gaskill, Philadelphia.—p. 576.
*Intramuscular Injection of Turpentine in Treatment of Diseases of Skin. O. L. Levin and E. Rose, New York.—p. 584.
Lichen Planus Eruption after Arsphenamin. L. K. McCafferty, New York.—p. 591.
Multiple Benign Tumor-Like Growths of Schweninger and Buzzi. S. E. Sweitzer, Minneapolis.—p. 599.
Present Status of Leprosy in Hawaiian Islands. W. T. Corlett, Cleveland.—p. 607.
*Ultraviolet Light in Erythema Induratum. E. L. Oliver, Boston.—p. 619.

Iodid and Bromid Exanthems.—Certain definite things appear to have been established by the studies made by Wile, Wright, and Smith. Iodid and bromid exist in the body fluids following their ingestion, but are not found in the purulent material from acneiform lesions. Percutaneous sensitization tests for iodid and bromid are uniformly negative, and cannot, therefore, be used to indicate ingestion susceptibility. The ready substitution in the body fluids of chlorid by bromid leads to the hypothesis that the ultimate cause of this reaction in the skin differs somewhat from that caused by iodid. The percutaneous introduction of foreign protein in the presence of a circulating blood containing bromid resulted, in one case, in lesions simulating those caused by bromids spontaneously. Precipitins in the blood serum were not demonstrable, at least by addition in vitro of solutions of bromid and iodid salts in minute quantities to the blood serums. The local phenomena of iododerma and bromoderma do not find their explanation on simple bacterial nor simple chemical grounds. The ultimate explanation probably lies in a complex biochemical reaction. The classification of such cutaneous phenomena, however, as true sensitization or allergy is as yet unjustifiable in the light of present knowledge.

Industrial Dermatitis.—Seven per cent. of cases of dermatitis venenata and eczema, or almost 3 per cent. of all admissions to a skin clinic in a large hospital, from which records were examined by Lane, were occupational in origin. He suggests that some name, such as "dermatitis industrialis" or at least a more accurate place in our nomenclature should be provided for this definite etiologic group of cases.

Procain Dermatitis Among Dentists.—Nine cases of dermatitis among dentists are cited by Gaskill in which procain was believed to be the cause but was shown later not to be concerned in the etiology. For persons who are subject to irritation of the hand on account of certain chemicals Gaskill suggests the use of an ointment composed of 25 per cent. hydrous wool fat and 75 per cent. petrolatum, heated in a water bath; 2 per cent. of phenol is added, thoroughly mixed and allowed to cool in a jar. A small quantity of this is rubbed thoroughly all over the hands and the excess is wiped off. The taste is not especially unpleasant to the patient, though a small quantity of ointment of rose water can replace a part of the petrolatum.

Intramuscular Injection of Turpentine in Skin Diseases.—As a result of their experience with injections of turpentine in the treatment of a large number of skin diseases, Levin and Rose recommend its employment in certain conditions. It may be of real value in the pyogenic infections, especially when there is follicular involvement. In such instances the injections may be given in conjunction with the local application of the roentgen rays. Good results were observed in cases of tinea barbae. In old ulcers the administration of turpentine was followed by evidence of stimulation and a tendency to healing. Fair results were attained in acne indurata. A dose of from 0.5 to 1 c.c. of a 15 per cent. solution of rectified turpentine in sterile olive oil, injected intramuscularly, causes no pain and gives the best result. The effect is both local and general. Locally, there is apparently cell irritation, while the vital centers in the medulla oblongata are reflexly stimulated.

Ultraviolet Light in Erythema Induration.—Five cases of erythema induratum were treated successfully by Oliver with the Kromayer lamp. The treatments were carried out by pressing the quartz glass window of the lamp firmly against the indurated areas for from one to two minutes to each area. When the lesions were small, the healthy skin outside the area was protected with paper or zinc oxid plaster. The Kromayer lamp was used on a 110 volt direct current and was run at full strength for ten minutes before applying it to the indurated areas. None of these patients had had ulcerations at any time, so that none of the cases were examples of the severest type of the disease.

Archives of Surgery, Chicago

November, 1922, **5**, No. 3

*Osteosclerosis Fragilis Generalisata: Marmorknochen: Albers-Schönberg Disease. G. G. Davis, Chicago.—p. 449.
*Osteopsathyrosis: Report of Case. D. M. Glover, Boston.—p. 464.
*Delbet Walking Plaster for Treatment of Delayed Union in Fractures of Both Bones of Leg. L. C. Abbott, Ann Arbor, Mich.—p. 485.
*Bone Atrophy: Clinical Study of Changes in Bone Which Result from Nonuse. N. Allison and B. Brooks, St. Louis.—p. 499.
*Experimental Study of Healing of Fractures. L. W. Ely, San Francisco.—p. 527.
Fracture of Tibial Spine: Experimental Study. F. E. Blaisdell, San Francisco.—p. 561.
*Corrective and Operative Treatment of Structural Scoliosis. A. Whitman, New York.—p. 578.
*Operative Treatment of Scoliosis. S. Kleinberg, New York.—p. 631.
*Bone Repair Following Injury and Infection. F. W. Bancroft, New York.—p. 646.
Lipping Fracture of Lower Articular End of Tibia. B. F. Lounsbury and A. R. Metz, Chicago.—p. 678.
Cases of Osteo-Arthritic Protrusion of Acetabulum (Intrapelvic Pfannenvorwölbung). A. E. Hertzler, Halstead, Kan.—p. 691.
Results of Treatment of Fractured Femurs in Children. W. H. Coe, St. Louis.—p. 702.

Osteosclerosis Fragilis Generalisata.—A patient who entered the hospital with a fracture of the right leg, the result of a rather trivial injury, giving a history of previous fractures, likewise following slight trauma, was found, on roentgen-ray examination, to have a pathologic fracture as the result of a rather obscure bone condition which has been termed osteosclerosis fragilis generalisata, Marmorknochen (marble bone), or Albers-Schönberg disease. Only nine other cases of this disease have been reported, all in the foreign literature, none in the English language. Davis records the history of his case, together with the roentgen-ray study of the entire skeleton, and gives a review of the literature of this subject to date.

Osteopsathyrosis.—By means of a series of roentgenograms, Glover gives a graphic fracture history of his patient from the time he was 9 months old until his death, at 7½ years.

Delbet Walking Plaster for Treatment of Delayed Union in Fractures.—The results obtained in practice have convinced Abbott that cases of ununited fracture of both bones of the leg of several months standing should be treated by some form of weight-bearing appliance, preferably the Delbet splint. Its use has made it possible to avoid operations in a number of instances. This method has proved successful when operation with plating has failed. Satisfactory results have also been obtained in cases in which operations had been performed either with or without bone grafts, the operation being followed by sepsis and osteomyelitis.

Study of Bone Atrophy.—The changes in bone which result from lack of use of extremities in various clinical conditions were observed by Allison and Brooks and these observations were compared with those made on experimental animals. The same atrophic changes in bone were observed when the lack of use was due to anterior poliomyelitis, spastic paralysis, peripheral nerve injury, Friedreich's ataxia, pseudomuscular atrophy, syringomyelia, chronic arthritis, tuberculosis of bone, pyogenic osteomyelitis, contracture, fracture, congenital deformities and astasia abasia. The character of the changes was the same in all instances, but the amount of the changes varied directly with the extent of the lack of use. There was absolutely no evidence that bone atrophy was ever the result of specific nerve influence on bone, and it is, therefore, unwarranted to assume that bone atrophy is ever a neurotrophic phenomenon. The initial atrophic changes in

bone due to nonuse of an extremity are the same regardless of the age of the individuals, but the ultimate result of the changes is different. In the person who has reached his complete growth instance, the process of bone atrophy is operating alone. In the person who is in his growing period at the time of onset of nonuse the process of bone atrophy is associated with the process of growth which is inhibited but not arrested by nonuse. The changes in bone which result from lack of use during adult life are such that the general shape and contour of the bone, as a whole, are only slightly modified. The diameter of the shaft may be very slightly decreased. The length is not changed. The medullary canal is increased in diameter, producing a corresponding diminution in the thickness of the cortex, which after a long period of nonuse is reduced to a thin bone shell. The cancellous bone becomes much more porous, with fewer and thinner trabeculae. After a long period of nonuse, the compact bone of the shaft becomes porous. This porosity explains the linear striae seen in the roentgenogram. Bone atrophy and recovery from bone atrophy are manifestations of the function of bone cells to produce bone matrix, which is in whole or in part distinct from the function of the bone cells to regenerate themselves. Bone atrophy and recovery from bone atrophy are processes which are not necessarily associated with cell death or cell proliferation. Regeneration without doubt is a process which is directly the result of cell multiplication.

Study of Healing of Fractures.—This study was undertaken by Ely to clear up several obscure points in the process of healing of fractures, but chiefly to ascertain the exact rôle assumed by the periosteum. After an ordinary fracture, hemorrhage takes place from the marrow canal under the periosteum. The periosteum is stripped up from the cortex by this hemorrhage and by the fracture itself. Then come the deposition of fibrin, the formation of granulation tissue and the formation of cartilage and fibrocartilage in the space beneath the stripped-up periosteum. Probably the function of the periosteum is only important in the early stages, up to the formation of the cartilaginous callus. The periosteum probably serves to keep the hemorrhage from escaping and the granulation tissue undisturbed. It has no bone-forming function, and bone is not built out of it. The subsequent ossification of the cartilaginous callus is carried out almost entirely, if not exclusively, from the external aspect of the cortex. The internal callus plays no effective part in the union. It is rudimentary when it is present.

Treatment of Structural Scoliosis.—Given a structural scoliosis of unknown origin in the case of an adolescent who applies for treatment because of progressive deformity, Whitman states, the prognosis as to the arrest of deformity is uncertain. A certain number of such conditions may be held in check by apparatus and exercises, provided the patients at all times take a personal interest in their posture. The only means of improving the actual deformity and the external appearance of the trunk is by apparatus embodying at least some of the principles outlined in the description of the corrective jacket. The maximum degree of improvement having been obtained, the spine must be held corrected for a period of years while accommodative changes in the vertebrae take place. This maintenance of correction can be effected only by a corrective jacket, recumbency, or operation. As a climax to the corrective treatment, and as postoperative fixation, recumbency on the convex stretcher frame has proved effective in still further reducing the deformity of the ribs, and in allowing full opportunity for chest expansion. While the amount of actual anatomic correction of the deformity of the vertebrae is exceedingly doubtful, the improvement in the patients' external appearance seems to have been maintained by the operation. It has also greatly abbreviated the period of their convalescence. The older the patient, the more rapid the ankylosis.

Operative Treatment of Scoliosis.—The treatment of structural scoliosis advocated by Kleinberg, consisting of a period of correction by means of traction on a convex frame followed by operative fixation of a large number of vertebrae by denuding the periosteum from the posterior arches of the vertebrae and inserting a large and long beef bone graft. The method is said to have given very satisfactory results. The use of the beef bone graft has many advantages. It may be prepared in advance, so that the operation is not needlessly prolonged. It may be cut of the desired length, shape and thickness. It affords support during consolidation of the vertebrae on which operation has been performed. It acts as a framework for new bone formation. It is especially valuable in the severe cases in which the deformity of the ribs and vertebrae is so marked that it is impossible and unsafe to carry out the Hibbs fusion operation thoroughly. The discomfort and disadvantages of plaster-of-Paris jackets are avoided and the surgeon is spared much hard work. The entire period of treatment is very much shortened, and it is hoped that it may not exceed nine months. Corrective treatment can be carried out more rapidly and just as efficiently on a convex frame with traction as by plaster-of-Paris jackets or braces. Finally, the results obtained are said to compare more than favorably with those following the use of plaster-of-Paris jackets, braces or gymnastic exercises.

Bone Repair Following Injury.—Bancroft advises that in these cases adequate drainage should be obtained with as little trauma as possible. In cases in which the patient is clinically progressing favorably, bone, which by roentgen-ray or gross examination, appears dead, may frequently be saved to advantage in order to prevent deformity and hasten convalescence. Bancroft thinks that in the past bone repair has been made to appear much too complex. It is much simpler to believe that bone occurs as a chemical deposition in connective tissue. Such a theory allows for bone formation as it appears in all parts of the body. Bone transplants act as a framework for new bone and stimulate osteogenesis. Therefore, grafts should be used that can easily have a blood supply established, and have sufficient free surface to stimulate bone production. In the treatment of fractures, care must be taken to increase the blood supply. This is more important than immobilization that constricts the limb. Early motion favors union for this reason.

Boston Medical and Surgical Journal

Oct. 19, 1922, **187**, No. 16

Obstetric Emergencies. R. S. Titus, Boston.—p. 564.
Contribution to Theory of Localization of Mental Functions. H. I. Gosline, Howard, R. I.—p. 570.

Nov. 9, 1922, **187**, No. 19

Convalescence: I. A Chronological Review to 1878. J. Bryant, Boston.—p. 653.

Journal of Cancer Research, Baltimore

January, 1922, **7**, No. 1

Appositional Growth in Crown Gall Tumors and in Cancers. E. F. Smith, Washington, D. C.—p. 1.

Journal of Nervous and Mental Diseases, New York

November, 1922, **56**, No. 5

Studies of Schizophrenic Reactions. G. W. Hall and C. A. Neymann, Chicago.—p. 433.
*Case of Recklinghausen's Disease with Involvement of Peripheral Nerves, Optic Nerve and Spinal Cord. H. L. Parker, Rochester, Minn.—p. 441.
Mental Symptom Complex Following Cranial Trauma. E. E. Hadley, Washington, D. C.—p. 453.

Recklinghausen's Disease with Involvement of Peripheral Nerves, Optic Nerve and Spinal Cord.—Interest in Parker's case is centered mainly on the widespread involvement of the central nervous system with a slight manifestation of cutaneous disease. The left ulnar, right external popliteal, and other peripheral nerves were involved. It was believed that there was also a tumor on the left optic nerve and one compressing the spinal cord at the level of the tenth dorsal segment, probably part of the same disease. Surgery was advised, and the nodules in the right antecubital fossa were removed to corroborate the diagnosis. The Krönlein operation was performed for removal of the orbital tumor from the left eye. Later a laminectomy was performed and the sixth, seventh, eighth and ninth laminae of the dorsal vertebrae were removed. Then the left ulnar nerve was exposed and the nodule removed, and also a nodule in the calf of the left leg. The tumors on the peripheral nerves were neurofibromas

while the two occupying the orbit and spinal canal, respectively, were dural fibro-endotheliomas. The patient is still alive and leading an active life more than twelve months after the many operations. Thus far he has not developed any new signs of Recklinghausen's disease.

Laryngoscope, St. Louis

October, 1922, **32**, No. 10

Streptococcus Hemolyticus Masteiditis. A. M. Dunlap, Peking, China.—p. 733.
Thrombosis of Superior Petrosal Sinus and Meningitis Following Acute Mastoiditis. H. E. Meleney, Peking, China.—p. 763.
Basal Metabolism in Hyperesthetic Rhinitis, Bronchial Asthma and in Cases in Which Roentgen Ray or Radium Has Been Applied to Tonsils. W. L. Simpson, Memphis, Tenn.—p. 768.
Lateral Sinus Thrombosis. D. M. Campbell, Detroit.—p. 775.
Two Cases of Head Injury, with Abnormal Otoneurologic Findings. M. J. Gottlieb, New York.—p. 783.

Minnesota Medicine, St. Paul

November, 1922, **5**, No. 11

Problems of Medical Profession, Past and Present. J. F. Corbett, Minneapolis.—p. 635.
Diagnosis of Focal Infection. J. Daland, Philadelphia.—p. 640.
*Coincidence of Shingles and Chickenpox. C. E. Riggs, St. Paul.—p. 646.
Hyperhidrosis of Cheek Associated with Injury to Parotid Region. G. B. New and H. E. Bozer, Rochester, Minn.—p. 652.
Bronchiectasis—Report of Fifty-One Cases. S. A. Weisman, Minneapolis.—p. 657.
*Low Virulence in Miliary Tuberculosis. M. I. Bierman, St. Louis.—p. 661.
Strangulated Hernia: Report of Cases. P. H. Kelly, St. Paul.—p. 666.
Part of Practicing Physician in Public Health Work. H. S. Diehl, Minneapolis.—p. 671.

Coincidence of Herpes Zoster and Chickenpox.—Riggs cites the case of a woman who developed herpes zoster of the left side of the face, affecting chiefly the second and third branch of the fifth nerve. There were a few scattered spots in the ophthalmic area, a few vesicles were observed in the external ear (the drum escaping), the mucous membrane of the mouth supplied by the superior maxillary and the inferior maxillary branches, also the left half of the tongue was covered with the herpetic eruption, which caused great suffering; the teeth were exquisitely painful and after recovery several cavities were found which were not present before the illness. Over the area of the left chin the vesicles were practically confluent and, where the skin approached the mucous membrane of the lip, formed a scab. There were no complications and recovery was uneventful aside from an aggravating paresthesia over the affected area, which still persists. About two weeks after the inception of this illness, a grandchild developed a typical case of chickenpox. The interesting fact is that there was no chickenpox around and she had not been anywhere where she could possibly have contracted it. After the usual incubation period, her brother, in turn, developed the disease.

Low Virulence in Miliary Tuberculosis.—Four cases of miliary tuberculosis of the lungs are cited by Bierman. None of these patients had any illness at all commensurate with the widespread pathology found in their chests on roentgen-ray examination. In a review of 3,500 roentgen-ray chest examinations, it was found that a greater or lesser dissemination of tubercles occurred in somewhat less than 1 per cent. of the cases examined. Arbitrarily fixing twenty-five calcified tubercles as a minimum, tuberculous calcified foci were found in thirty-four cases, an incidence of about one in 100 cases examined, or approximately 0.96 per cent. The number of healed tubercles ranged from about twenty-five to several hundred, and on stereoscopic examination they were found to be scattered all through the lungs, from the extreme apices to the extreme bases, as well as on the pleura. It is shown that the patients to whom an infectious accident occurs, following which there is a widespread dissemination of tuberculous colonies throughout both lungs, have a remarkable resistance to the toxins produced by the bacteria, and, without difficulty, in a short time calcify the tubercles and heal the lesions. Miliary tuberculosis is frequently a mild infection which may be below the level of clinical manifestation. It may even be that the patient does not know that he has any unusual conditions affecting his lungs. This lack of clinical phenomena is probably due to the high resistance of the patient, or even possibly the low virulence of the infecting organism, although the former is probably the case. The condition can probably not be diagnosed clinically except as an acute bronchitis. With the aid of the roentgen ray it is possible that the condition may be diagnosed; but even this is doubtful, as the tubercles would have to be recognized by the pneumonic exudate surrounding each one. If these areas of pneumonic consolidation were at all numerous, the absorption of toxins from them would in all probability lead to clinical manifestations of greater severity than merely those of a mild respiratory infection; so it is probable that no great amount of local reaction is present and therefore not roentgenographically dianogstic. None of the patients who showed the dissemination of the tuberculous colonies were colored, although their incidence was about 20 per cent.

Missouri State Medical Association Journal, St. Louis

November, 1922, **19**, No. 11

*Treatment of Pernicious Anemia with Special Reference to Arsenic and Hydrochloric Acid. P. T. Bohan, Kansas City.—p. 451.
*Unusual Case of Still's Disease. H. Schneiderman, Kansas City.—p. 456.
Diagnosis of Lesions of Esophagus. J. R. McVay, Kansas City.—p. 458.
Diaphragmatic Hernia—Nontraumatic: Report of Four Cases. E. H. Kessler, St. Louis.—p. 461.
Clinical and Radiologic Findings in Pleurisy. M. B. and P. F. Titterington, St. Louis.—p. 465.

Arsenic and Hydrochlorid Acid in Pernicious Anemia.—Treatment with hydrochloric acid and arsenic, combined with measures to improve the general health, in Bohan's opinion, gives these patients the best chance of prolonging their lives of any form of therapy so far suggested. It does not require the transporting of patients a considerable distance to a skilled specialist, but may be carried out in any home by the family doctor. This method of treatment is based on the most plausible etiologic theories. Although the cause of pernicious anemia is unknown, it is probable that the manifestations of the disease depend on a variety of factors, most important of these are dietary deficiencies, overwork, mental stress, loss of sleep, achylia gastrica and oral sepsis. It is the consensus of opinion that pernicious anemia is due to some hemolytic agent that reaches the blood stream via the gastro-intestinal tract. In some patients with the fish tapeworm, an anemia develops that is indistinguishable from pernicious anemia, there is an achylia gastrica and the course of the disease is characterized by remissions and relapses. Pernicious anemia in the horse is associated with the constant finding of the ova of a fly in the stomach or intestines. Evidence is accumulating to indicate that when there is absolute lack of gastric ferments some substance is formed, due to bacterial changes or as a result of an abnormal food splitting process in the proteins, that can be detrimental to the blood forming organs. Bohan gives from 10 to 15 drops of the dilute hydrochloric acid before, during and after meals, and solution of potassium arsenite (Fowler's solution), beginning with 3 drops three times a day, and gradually increasing the dose to 12 or 15 drops.

Elephantiasis in Still's Disease.—The unusual features in Schneiderman's case were elephantiasis of the legs, blindness and deafness. The elephantiasis was evidently due to the inflammation in the lymph glands next to the affected joints, causing an obstruction to the lymph flow from the extremities. The optic atrophy, corneal opacities, and deafness are hard to explain, unless caused by the same toxins or bacteria that caused the joint changes.

Nebraska State Medical Journal, Norfolk

November, 1922, **7**, No. 11

Carcinoma of Stomach. B. B. Davis, Omaha.—p. 365.
Fundamental Principles of Radiation Therapy; Clinical Results Possible. A. F. Tyler, Omaha.—p. 370.
Primary Carcinoma of Lung: Report of Cases. W. O. Bridges and R. A. Moser, Omaha.—p. 377.
Pathology of Primary Carcinoma of Lungs. M. G. Wehl, Omaha.—p. 381.
Cancer Problem. F. Findley, Omaha.—p. 384.
Cancer of Esophagus. G. P. Pratt, Omaha.—p. 385.
Cancer of Rectum. L. E. Moon, Omaha.—p. 389.

New York Medical Journal and Medical Record

Oct. 18, 1922, **116**, No. 8

Some Deficiencies of Modern Therapeutics. J. M. Anders, Philadelphia.—p. 429.
Pharmacoendocrinology as Foundation for Rapid Progress in Therapeutics. C. E. de M. Sajous, Philadelphia.—p. 432.
Internal Secretions in Their Relations to Neurologist and Psychiatrist. F. X. Dercum, Philadelphia.—p. 438.
Primary Sterility. A. J. Rongy, New York.—p. 439.
Acute Osteomyelitis. F. L. Hupp, Wheeling, W. Va.—p. 445.
Hypertrophied Anal Papillae (Papillitis). C. J. Drueck, Chicago.—p. 448.
Intussusception: Review of Recent Literature and Report of Cases. G. Schwartz, New York.—p. 449.
Malnutrition Due to Carbohydrate Excess. S. Z. Orgel, New York.—p. 453.
Selective Action of Drugs and Biological Products. H. K. Craig, Washington, D. C.—p. 455.
Clinical Psychiatry. S. DeW. Ludlum, Philadelphia.—p. 459.
Preschool Age. M. S. Reuben, New York.—p. 462.
Significant Results Obtained in Treating Catarrhal Deafness. P. V. Winslow, New York.—p. 466.

Nov. 1, 1922, **116**, No. 9

Some Recent Advances in Urologic Surgery. H. G. Bugbee, New York.—p. 489.
Prevention of Venereal Disease. H. W. Bayly, London.—p. 493.
Case of Accidental Occlusion of Male Urethra by Thread Around Corona. W. Bisher, New York.—p. 498.
Impotence in Male. B. S. Talmey, New York.—p. 499.
Food Allergy as Cause of Irritable Bladder. W. W. Duke, Kansas City, Mo.—p. 505.
Hypernephroma of Kidney: Removal with Perirenal Fat en Masse. A. R. Stevens, New York.—p. 507.
Emergencies in Urology. W. J. Ezickson, Philadelphia.—p. 508.
Choice of Anesthetic in Major Urologic Surgery. W. H. Thomas, Philadelphia.—p. 511.
Treatment of Syphilis. W. J. Moore, Glasgow, Scotland.—p. 514.
Diagnosis, Interpretation and Biologic Treatment of Renal Disease. N. P. Norman, New York.—p. 518.
*Unusual Case of Renal Calculi. A. Denenholz, Brooklyn.—p. 520.
Incidence of Urochromogen Reaction of Weiss in 888 Examinations. R. A. Kilduffe, Pittsburgh.—p. 523.
*New Method for Quantitative Determination of Sugar in Urine. J. B. Ogden and J. M. Connolly, New York.—p. 524.
Review of Hereditary Syphilis of Ear. M. L. Breitstein, Baltimore.—p. 526.
New Cystoscopic Table. O. S. Lowsley, New York.—p. 528.
Tabetic Kidneys Diagnosed as Tuberculous. H. S. Jeck, New York.—p. 529.
Case of Chancre on Penis at 71, Apparently with no History of Sexual Contact. A. M. Crance, Geneva, N. Y.—p. 531.
Hydropyonephrosis Due to Calculi: Papillary Carcinoma of Kidney. J. S. Read, Brooklyn.—p. 530.

Unusual Case of Renal Calculi.—Denenholz reports the case of a young man, *22* years of age, suffering with right abdominal pain who had been operated on for appendicitis but the symptoms persisted. Roentgen-ray examination of the kidneys was negative; the urinary findings were negative. The patient disappeared from observation and returned with severe symptoms in the right lumbar region. A cystoscopy was done and the patient almost went into collapse on the table. There was grave doubt as to the interpretation of the roentgen-ray findings. The doubtful looking shadow in the lower pole of the kidney gave a suspicion of the presence of more calculi in that kidney. On the exploration of the pelvis, the finding of a large branched stone, entirely different in shape and size from what Denenholz had been led to anticipate from the picture, made him feel more strongly than ever that the kidney was riddled with stones. A nephrotomy failed to reveal any stones. However, because of the symptoms present and still believing that there were many other stones, Denenholz removed the kidney, especially knowing the left kidney to be normal. The patient made a complete recovery and is now in excellent health, and is working steadily at his original trade. His present urinary findings are normal.

Quantitative Determination of Sugar in Urine.—A new modification of Pavy's solution is proposed by Ogden and Connolly as an improvement on any formula heretofore published. A new (reversed) method of titration is offered, more rapid and convenient in use than the usual procedure. The claim is made that by this formula and method more accurate results can be obtained than by any other titration method at present available, and fully as accurate as those of the best colorimetric methods, the results of which it closely duplicates with less expenditure of time and labor.

Ohio State Medical Journal, Columbus

November, 1922, **18**, No. 11

Historical Review of Anorectal Diseases: Limitations and Technic of Local Anesthesia in Rectocolonic Operation. S. G. Gant, New York.—p. 733.
Pleurobronchial and Pleurocutaneous Fistulas. J. A. Sherbondy, Youngstown.—p. 739.
Rational Use of Digitalis Especially in Auricular Fibrillation. R. Dexter, Cleveland.—p. 742.
Problems of Present Obstetric Situation. W. W. Brand, Toledo.—p. 746.
Wassermann Reaction in Nonsyphilitic Patients: What It Conveys. C. J. Broeman, Cincinnati.—p. 748.
*Treatment of Chorea by Intravenous Injections of Pure Protein. E. G. Horton, Columbus.—p. 751.
Influence of Hospital Standardization on Preventive Medicine. C. D. Selby, Toledo.—p. 754.
Tachycardias of Neurotic Origin. C. E. Kiely, Cincinnati.—p. 757.
Early Diagnosis of Cancer of Stomach. J. Forman, Columbus.—p. 764.

Intravenous Injections of Pure Proteins in Chorea.—Horton is of the opinion that a chemically pure protein may be used intravenously with as great success as autoserum or horse serum, and with greater convenience. The results obtained are probably due to foreign protein alone. The use of protein is most effective (and perhaps only so) in those cases of chorea in which there is a rheumatic or tonsillar history. Whether the presence of an eosinophilia will aid in eliminating cases that will not respond to this form of treatment requires further study.

Public Health Journal, Toronto

October, 1922, **13**, No. 10

How to Control Diphtheria in Small Country Village. J. A. Morgan, Peterborough, Ont.—p. 433.
Some Results of Campaign Against Venereal Diseases in Montreal. N. Fournier, Montreal.—p. 439.
Nature of Substances Responsible for Complement Fixation in Tuberculosis. R. W. Hodge, Toronto.—p. 442.
Safe and Clean Milk Supply. E. H. Stonehouse.—p. 449.
Public Health Nurse in Tuberculosis Work. K. J. McLeod, Sydney, N. S.—p. 455.

Rhode Island Medical Journal, Providence

November, 1922, **5**, No. 11

Cancer of Uterus. L. Davis, Boston.—p. 333.
Lethargic Encephalitis as Complication of Pregnancy. A. Corvese, Providence.—p. 337.

Texas State Journal of Medicine, Ft. Worth

November, 1922, **18**, No. 7

*Cystic Disease of Breast. J. E. Thompson, Galveston.—p. 344.
Cancer of Breast: Combined Treatment by Surgery, Radium and Roentgen Ray. J. T. Moore, Houston.—p. 352.
Adenocystoma of Ovary. E. W. Bertner, Houston.—p. 355.
New Roentgenotherapy in Gynecology. J. T. Case, Battle Creek, Mich.—p. 360.
Treatment of Uterine Cancer. R. Duncan, Los Angeles.—p. 366.
Radium in Gynecology. O. L. Norsworthy, Houston.—p. 370.
Glioma Retinae. E. H. Cary, Dallas.—p. 376.

Cystic Disease of Breast.—Thompson made an examination of all the cancerous breasts kept in the museum of surgical pathology of the University of Texas in order to determine the frequency of cystic disease in the noncancerous areas of the gland. The following is the result of the inquiry: cystic carcinoma, 16 cases; noncancerous area of breast showed general cystic disease (4 of Reclus type), 13 cases; multiple tiny cysts in fatty breast, 2 cases; fibrosis (no cysts), 1 case. Unselected carcinoma (excluding cystic carcinoma), 33 cases; noncancerous area of breast showed: cystic disease, 11 cases; fibrosis, 4 cases; adenomatoid mastitis, 1 case; normal, 4 cases; a few cysts in a fatty breast, 1 case; whole breast involved in cancer, 12 cases. This analysis shows that in cystic carcinoma almost all the cases (15 out of 16) showed cystic changes in the remainder of the breast; and further, that in 4 cases (25 per cent.) the cystic disease was of the proliferative type (Reclus disease). Thompson favors radical treatment in these cases.

U. S. Naval Medical Bulletin, Wahington, D. C.

October, 1922, **17**, No. 4

Yellow Fever in St. Thomas, with Special Reference to Its Spontaneous Elimination. E. Peterson.—p. 555.
Kidney Function. C. W. O. Bunker.—p. 570.
Functions and Organization of Medical Corps Units Serving with Marine Corps in Field. S. N. Raynor.—p. 578.
Hygiene of Submersibles. C. M. Belli.—p. 589.
Gas Warfare—Organization in Peace and War. W. R. Galwey.—p. 611

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Bristol Medico-Chirurgical Journal

September, 1922, **39**, No. 146

Oral Sepsis as Source of Systemic Infections. W. R. Ackland.—p. 76.
*Differential Diagnosis of Malignant Disease of Cecum from Chronic and Subacute Appendicitis. C. A. Morton.—p. 82.

Differential Diagnosis of Malignant Disease of Cecum from Appendicitis.—Morton records a case of chronic appendical abscess simulating malignant disease of the cecum; a case of malignant growth of the cecum in which the diagnosis from chronic appendicitis was difficult; a case of malignant growth of the cecum with secondary appendicitis; a case of appendicitis somewhat suggestive of the possibility of new growth and a case of malignant disease of the base of the cecum simulating subacute appendicitis.

British Medical Journal, London

Oct. 28, 1922, **2**, No. 3226

Certain Developments in Medicine. L. Dawson.—p. 781.
Light Sense, with Special Reference to Navigation. A. F. Fergus.—p. 783.
Mechanism of Hearing. W. M. Bayliss.—p. 785.
Luminal in Migraine. W. Harris.—p. 786.
Administration of Anatomy Act. A. MacPhail.—p. 788.
Relation of Ureters to Vagina. J. C. Brash.—p. 790.
Anatomy of Bone Marrow: with Special Reference to Distribution of Red Marrow. A. Piney.—p. 792.
Radiology in Teaching of Anatomy. J. M. W. Morison.—p. 795.
Structure of Vertebrate Head. W. B. Primrose.—p. 796.
Shape of Palate in Children. W. K. Connell.—p. 800.
Mesenteric Cyst of Jejunal Origin Complicated by Retrojejunal Position of Transverse Colon. J. I. Hunter.—p. 800.
Two Cases of Acute Lymphatic Leukemia. W. E. Cooke.—p. 802.
Case of Splenomedullary Leukemia. A. D. Pocock.—p. 802.

Nov. 4, 1922, **2**, No. 3227

Insulin and Diabetes. J. J. R. Macleod.—p. 833.
Surgery of Pituitary Gland. A. J. Walton.—p. 835.
Mental Symptoms in Physical Disease. M. Craig.—p. 841.
*Treatment of Rodent Ulcer by Chromic Acid Solution. A. D. Kennedy.—p. 844.
Prophylactic Rectification and Version at Antenatal Clinic. J. W. Ballantyne.—p. 845.
Case of Conversion Neurosis. P. C. Livingston.—p. 846.

Chromic Acid Solution in Treatment of Rodent Ulcer.—The treatment of rodent ulcer by the application of chromic acid solution, 10 per cent. in distilled water, was suggested to Kennedy in 1910 by George T. Beatson, senior consulting surgeon to the Royal Cancer Hospital, Glasgow. Since then he has treated twenty-five cases with good results. The crust is removed, the floor of the ulcer cleansed with plain sterile water and chromic acid solution is applied to it and to the surrounding skin by means of a fine camel-hair brush. This is repeated daily until the patient complains of pain coming on about an hour after treatment and usually lasting an hour. At this stage, varying from the fifth to the tenth day, the treatment should be discontinued and a bland ointment substituted till the pain and inflammation subside. Chromic acid diluted to 10 per cent. strength, while inimical to rodent ulcer cells, does not effect those of healthy tissue however tender.

Edinburgh Medical Journal

November, 1922, **29**, No. 5

Esophageal Achalasia. D. M. Greig.—p. 217.
*Congenital Hyperkeratosis. W. E. Foggie.—p. 229.

Congenital Hyperkeratosis.—Foggie records the case of a child born with a thick, hard, covering layer, which was completely shed. A general widespread keratotic condition has persisted. The child has been seen at frequent intervals during the last fifteen years. The general health has been well maintained She began to walk at the usual age. The mentality is very fair but the physical disability hindered for a time her education. Latterly she has made considerable progress at an invalid school.

Irish Journal of Medical Science, Dublin

October, 1922, **5**, No. 8

Case of Fibrocystic Disease of Tibia; Treated by Resection and Bone-Grafting. W. Pearson.—p. 341.
Deep Roentgen-Ray Therapy in Surgical Work. W. Doolin.—p. 357.

Journal of Pathology and Bacteriology, London

October, 1922, **25**, No. 4

*Experimental Production of Sarcoma in Mice and Rats. B. R. G. Russell.—p. 409.
Partial Activity of Kidney and the "All or Nothing" Principle. V. R. Khanolkar.—p. 414.
*Lipoid Degeneration of Kidney: So-Called "Myelin Kidney." J. W. M'Nee.—p. 425.
*Experimental Intestinal Tuberculosis: Effect of Treatment with Naphthalene Emulsion. T. Redman.—p. 433.
Studies in Respiratory Infections in Southern Australia: III. Pneumococcus and Other Members of Viridans Group of Micrococci. S. W. Patterson and F. E. Williams.—p. 450.
Routine Preparation of Diphtheria Toxin. P. Hartley and O. M. Hartley.—p. 458.
Toxin and Reaction Changes Produced by Diphtheria Bacillus in Culture. P. Hartley and O. M. Hartley.—p. 468.
Value of Douglas' Medium for Production of Diphtheria Toxin. P. Hartley.—p. 479.
Diameters of Red Cells in Pernicious Anemia and in Anemia Following Hemorrhage. C. Price-Jones.—p. 487.
Studies in Group Agglutination: I. Salmonella Group and Its Antigenic Structure. F. W. Andrewes.—p. 505.
Periodic Opacity of Wassermann "Antigen" in Progressively Increasing Concentrations of Sodium Chlorid. J. Holker.—p. 522.

Experimental Production of Sarcoma.—It is shown by Russell that sarcoma of rats and mice can be produced by repeated subcutaneous inoculation of coal tar.

Myelin Kidney: Lipoid Degeneration.—Three cases of "myelin" kidney are discussed by M'Nee. The term "myelin kidney" is applicable to a special form of fatty degeneration of the kidney, in which lipoid (cholesterin-ester) fat is present in such large amount that a characteristic and easily recognizable appearance is given to the organ. The doubly refracting fat, which contains always an admixture of neutral or glycerin-ester fat, is deposited chiefly in the interstitial tissue of the cortex. It is at first contained within cells. Later, the fat lies free in the connective tissue spaces, the outline of the cells having disappeared. Similar lipoid fat, in smaller quantity, occurs both in the cells of the tubal epithelium and in the interstitial tissue, in many degenerative lesions of the kidney (large white kidney, amyloid disease). In all three examples of myelin kidney described, there was found a late stage of an intracapillary glomerulonephritis, with commencing interstitial changes, and degeneration of tubular epithelium. The following explanations are given by M'Nee to account for the extraordinary lipoid degeneration found in the "myelin kidney": (*a*) that the damage to the tubular epithelium has in these cases been of more severe degree than is usual in glomerulotubal nephritis, in which neutral fat is generally found in the cells; (*b*) that syphilis is concerned in the production of the lesion.

Naphthalene Emulsion in Intestinal Tuberculosis.—The therapeutic value of naphthalene emulsion in intestinal tuberculosis was studied by Redman to ascertain whether it had any retarding effect on the rate of progress of the disease. The emulsion used had the following composition: oil of naphthalene, 1 ounce; liquor potassae, 1 dram, 40 minims; water, 8 ounces. The naphthalene oil was prepared by dissolving naphthalene in warm olive oil and allowing excess to crystallize out. In vitro it was found that 20 c.c. of naphthalene emulsion killed half a slant of a virulent culture of human tubercle bacilli in less than twelve hours. No trace of tuberculous infection of twenty days' standing was found from fourteen to seventy days after the use of naphthalene emulsion. The rate of progress of infection of the lymph glands was markedly retarded. Seventy-five days after the administration of naphthalene emulsion to infected animals the only evidence of tuberculosis was in three small cecal glands, the control animals showing great enlargement of mesenteric and other glands; while, in 111 days, the mesenteric glands of treated animals were enlarged, but no others, and there was no infection of the organs such as occurred in controls. Infection of the spleen was prevented for between fifty-four and seventy-five days. The liver and lungs were protected from infection for about 115 days after ingestion by the animal of tuberculous material. Even in very severe cases of infection life was prolonged. Microscopically, there was a marked difference between the tuberculous glands of treated and untreated animals, fibrous tissue forming fairly early and often replacing typical tubercle structure in treated animals sooner than in untreated animals.

Journal of Tropical Medicine and Hygiene, London

Oct. 16, 1922, **25**, No. 20

*Outbreak of Smallpox in Anguilla.—p. 321.

Smallpox in British West Indies.—Aug. 1, 1921, a case of smallpox arrived in Anguilla, B. W. I., from Santo Domingo, where the disease was prevailing in epidemic form. The number of cases finally increased to twenty-three. There being no quarantine station for isolation purposes, the 400 contacts were released by Jones and kept under daily surveillance for fourteen days. Prompt isolation of infected persons, vaccination and revaccination succeeded in checking the disease, so that only two persons in the population of more than 4,000 contracted the disease. The clinical symptoms were those of modified variola occurring in a population of British West Indians, unlike the Haitians, accustomed to vaccination in childhood. Jones says that the absence of "conscientious objectors," and the loyal cooperation of the whole population were contributory factors toward the successful stamping out of the epidemic within the space of six weeks.

Lancet, London

Nov. 4, 1922, **2**, No. 5173

Mental Symptoms in Physical Disease. M. Craig.—p. 945.
Assessment of Elderly Lives for Life Assurance. R. A. Young.—p. 950.
Temperature and Other Changes in Women During Menstrual Cycle. W. C. Cullis, E. M. Oppenheimer and M. Ross-Johnson.—p. 954.
*Variations of Blood Pressure During Menstruation. S. E. Amos.—p. 956.
*"Ammonia Coefficient" in Menstruation. M. Bond.—p. 957.
Colloidal Calcium in Malnutrition, Chronic Sepsis, and Emotional Disturbance. T. C. Graves.—p. 957.
*Blood Immunization Method for Tuberculosis: Suggestion for Combined Therapy. A. S. Boyd.—p. 960.
Chronic Disease of the Verumontanum and Sexual Neurosis. M. W. Browdy.—p. 961.
Antidote to Toxic Effects of Excess Protein Diet During Lactation. G. A. Hartwell.—p. 963.

Variations in Blood Pressure During Menstruation.—Amos asserts that early in the menstrual period there is a decided fall of pressure, and this is often preceded, a day or so before the commencement of the period, by a rise, and further, after the rather sudden fall, there is again a rise toward the end of menstruation, or a day or so after the period has finished.

Ammonia Coefficient in Menstruation.—It would appear from Bond's work that there is a certain relation between the value of the "ammonia coefficient" and menstruation. In the postmenstrual and intermenstrual periods the coefficient varies little from the intermenstrual average, but during the seven days previous to the period—i. e., the premenstrual period—there is a marked rise. This rise appears to be due to a rise in (total) output of urinary ammonia rather than to a decrease in (total) output of urinary nitrogen.

Blood Immunization Method for Tuberculosis.—Boyd discusses the work he has done in treating tuberculosis patients with the blood serum and cells of an animal naturally resistant to tuberculosis and an immunized animal as well as the serum of a pregnant animal, as pregnancy is said to raise the power of the tissues. The animal used was a pregnant donkey mare who was injected with a mixture of sputum from a tuberculous patient and a plate culture (unmeasured) of tubercle bacillus (human). Three tuberculous patients were then injected with the whole blood of the donkey in a proportion of 10 c.c. of blood to 1 c.c. of a 1.5 per cent. sodium citrate solution.

National Medical Journal of China, Shanghai

September, 1922, **8**, No. 3

Water and Allied Fluids as Therapeutic Agents. K. H. Li.—p. 151.
Height, Weight and Chest Measurements of Chinese. W. W. Cadbury.—p. 158.
Traumatic Intramuscular Ossification. R. F. Maddren.—p. 177.
Active Principle of Organ Extract. S. Kubota.—p. 185.
Prophylaxis Controversy. C. Franks.—p. 200.

Tubercle, London

November, 1922, **4**, No. 2

Advanced Pulmonary Tuberculosis. F. R. G. Heaf.—p. 49.
*Treatment of Pleural Effusions, Notably Effusions of Artificial Pneumothorax. Body's Resorptive Processes in Tuberculosis. N. Lunde.—p. 57.
Methods for Demonstrating Genesis of Pulmonary Tuberculosis in Childhood. A. Brinchmann.—p. 62.
Treatment of Osteo-Articular Tuberculosis. C. L. Pattison.—p. 65.

Treatment of Pleural Effusions by Calcium and Potassium.—To restore the calcium-sodium balance, in the organism, small quantities of calcium and potassium are given by Lunde regularly over a long period. At Lyster sanatorium a standard solution is used, one teaspoonful (5 c.c.) of which contains 1 gm. potassium acetate and 0.5 gm. calcium chlorid. With the same object highly salted foods are soaked in water to deprive them of much of their salts before being eaten, and the addition of salt to food is reduced to a minimum. Certain, carefully regulated, respiratory exercises are advocated with a view to facilitating the drainage of an organism suffering from water retention. The regular exhibition of small doses of cod liver oil is recommended on account of its high content of fat soluble vitamin which is of importance to calcium metabolism. Various other principles are discussed, and an account is given of the results achieved by applying these principles to cases of pleural effusion complicating treatment by artificial pneumothorax.

Archives de Médecine des Enfants, Paris

October, 1922, **25**, No. 10

*Nephritis in Hereditary Syphilis. V. Hutinel.—p. 577. Cont'd.
*Pneumothorax in Children. L. Babonneix and L. Denoyelle.—p. 599.
*Familial Hernia. G. Schreiber.—p. 607.
Congenital Cyst in Hyoid Bone Region. H. L. Rocher et al.—p. 611.
Convalescents' Serum in Measles. J. Comby.—p. 614.

Nephritis in Infantile Hereditary Syphilis.—Carrière said in 1903 on the subject of renal manifestations in hereditary syphilis: "Everybody speaks about them, but examples are rare." Queslier, however, was able to gather 101 observations. Hutinel says that with inherited syphilis nephritis may appear in all sorts of forms. It seems that in children we can hold hereditary syphilis responsible for interstitial nephritis and arteriosclerosis, the same as in adults. It is undoubtedly its most typical form, but it is not the only one, nor is it the one most frequently found. We have a tendency to incriminate syphilis, as we do tuberculosis and malaria, for all manifestations occurring in those who have any one of the three. Other toxic or infectious agents may combine their effects with those of syphilis. Syphilis may facilitate the action on the kidney of ordinary infections, which, as a rule, have no marked predilection for this organ. In conclusion Hutinel states that mixed nephritis occurring in syphilitic subjects develops on this soil with special characteristics. Renal aplasia may be included in the study of nephritis in hereditary syphilis, but it does not strictly belong under this heading.

Artificial Pneumothorax in Children.—Babonneix and Denoyelle found in 280 children with progressive pulmonary tuberculosis that the disease was strictly unilateral in 12. Of this number, 7 were treated with artificial pneumothorax. In 5 others, pleural adhesions interfered; in only 2 of these cases had the adhesions been diagnosed. They conclude from their observations that shrinking of the wall on the side of the pneumothorax and scoliosis occur very early. In 3 cases out of 7, the pneumothorax was followed rapidly by the appearance of a localized pneumonic focus on the opposite side which retrogressed fairly quickly and completely. It seemed to be due to the contamination of the healthy lung by expectoration of bacilli from the diseased lung. To prevent such accidents, compression should always be slow and progressive so as not to force out into the bronchi the contents of the cavity. In one case, the general condition improved but bacilli persisted in the sputum. In 3 other cases, the local and general results were excellent and seem durable.

Congenital Diaphragmatic Hernia.—Schreiber's case is a congenital diaphragmatic hernia with dextrocardia and the stomach, small intestine, spleen and the left lobe of the liver in the thorax. The mother developed eventration after delivery. Weakness of the abdominal wall is found in nearly all the members of the family. Among her five children, a boy of 8 was treated at 6 for right inguinal hernia; a girl who died from appendicitis at 5 had had a right inguinal

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hernia; a boy of 2, an umbilical hernia, and the female child here described, diaphragmatic hernia. The woman's father was operated on for double inguinal hernia and two of her sisters for double and simple hernia, respectively. Her pregnancies were accompanied by extensive varices, and her father, mother, four sisters and three brothers also had varices.

Bulletin de l'Académie de Médecine, Paris

Oct. 17, 1922, **88**, No. 33

*Respiratory Anaphylaxis. F. Arloing et al.—p. 138.
Mechanism of Hemoclastic Crisis. F. Arbing and L. Langeron.—p. 141.

Respiratory Anaphylaxis.—This is a report of research done at the laboratory for experimental and comparative medicine at the Lyons medical school. The sensitized guinea-pigs developed anaphylactic phenomena after introduction of the antigen by the respiratory passages. The anaphylaxis thus induced was a general phenomenon, but preliminary tuberculous infection of the lungs attracted the anaphylactic phenomena to the lungs.

Bulletins de la Société Médicale des Hôpitaux, Paris

Oct. 13, 1922, **46**, No. 27

*Skin Affections During Treatment for Syphilis. P. Ravaut.—p. 1318.
Radiography in Leprosy. G. Delamare and H. Chukri.—p. 1321.
*Diabetes with Multiglandular Lesions. H. Claude and H. Schaeffer.—p. 1326.

Action on Skin of Treatment of Syphilis.—Ravaut remarks that acquired or inherited syphilis is often found in the antecedents of cases of eczema and other skin affections rebellious to treatment. This explains the cases in which the skin disease has improved during a course of treatment for syphilis. A course of small doses of calomel alternating with arsenicals—all by the mouth—has often resulted in the cure of long rebellious skin affections. The results of treatment were so clear that it is impossible to overlook the prime importance of the constitutional disturbance, the *troubles humoraux*, in many skin affections. And these may be transformed by patient and persevering internal treatment.

Diabetes with Endocrine Lesions.—Necropsy of the man of 38—a diabetic for six years with terminal pulmonary tuberculosis—revealed lesions in the pancreas, pituitary and suprarenals, which were all extremely atrophied. The thyroid seemed approximately normal. The first symptoms of the diabetes had developed in the course of acute nephritis.

Encéphale, Paris

October, 1922, **17**, No. 8

*Pathology of the Sympathetic. W. Langdon Brown.—p. 473.
Psychic Hallucinations. R. Dupouy.—p. 485.
*Precocious Puberty. K. H. Krabbe.—p. 496. Conc'n.
*Mental Anorexia and the Thyroid. L. Lévi.—p. 507.
Neuritic Facial Diplegia. D. E. Paulian.—p. 516.
Inherited Syphilis and Feeblemindedness. Roubinovitch et al.—p. 518.

General Pathology of the Sympathetic.—Brown emphasizes the essentially defensive role of the sympathetic nervous system. It sends the flood of energy toward the exterior, while the parasympathetic nervous system sends it inward. The sympathetic functions in the plane of the subconscious. Pain, fear and anger are the special stimuli which rouse it to action, and when the adequate motor reaction is prevented or restrained, the preparations for defense are thus diverted from their natural purpose and may display a pathologic character of perseveration or dissociation. The restraints of civilization are liable to entail this perversion of a primary defensive mechanism, and this, he reiterates, is the key to the general pathology of the sympathetic nervous system. Among the instances he cites are the almost epidemic appearance of hyperthyroidism after the San Francisco earthquake, after the massacres at Kishineff and during the period of airplane bombing of London. He adds that as the sympathetic is the intermediator between the skin and the endocrine glands and the brain, this explains how the effect of climate on the skin can modify brain functioning. Certain associations of ideas can act on the autonomic nervous system independently of the will. Hence if we can realize this association of ideas voluntarily, the same autonomic reactions may follow.

Precocious Puberty.—This long article discusses the connection between tuberose sclerosis of the brain (Bourneville's disease) and hydrocephalus and precocious puberty. Krabbe's conclusions are negative as to a direct relation between these brain affections and the precocious genital development, except as they may all be due to some primary cause.

Mental Anorexia and the Thyroid.—Lévi reports some cases of mental anorexia in which thyroid treatment restored conditions to normal. The appetite returned and the three women gained in weight. Analysis of the cases shows absence of appetite from thyroid insufficiency. On this had become superposed a mental condition aggravating the anorexia and perpetuating it.

Gynécologie et Obstétrique, Paris

September, 1922, **6**, No. 3

*Thyroparathyroid Insufficiency and Pregnancy. A. Fruhinsholz.—p. 145.
*Suppurating Strumitis During Puerperal Infection. L. Grimault and H. Brino.—p. 167.
*Fetal Smallpox. P. Puig y Roig.—p. 176.
Gonorrhea in Women. H. Hartmann.—p. 184.

Thyroid-Parathyroid Insufficiency and Pregnancy.—Fruhinsholz reports four instances of pregnancies in women with typical abortive myxedema. He was impressed by the constancy of renal disturbances in these cases: eclampsia and slight albuminuria in the first case; slight and transient albuminuria in the second; albuminuria and "eclampsism" in the third, and edema in the fourth observation. He does not draw any conclusions from these cases, and states that he has merely tried to record the facts as they were, rather than to solve the question of thyroparathyroid insufficiency in relation to pregnancy. His aim is to supply a base for obstetricians to study the question anew from fresh observations. He reviews the publications he has found on pregnancies in women with thyroid insufficiency, and theorizes that this may explain a number of puzzling phenomena.

Suppurating Strumitis in Puerperal Infection.—Grimault and Brino give a detailed account of a case of acute suppurating strumitis during puerperal infection. Their study deals only with suppuration of a goiter under the influence of puerperal infection; they cite seven cases from the literature. It seems, from their observations, that its prognosis is not as grave as reported; the mortality is limited to 11 per cent. The prognosis depends usually on the gravity of the puerperal infection, but in many cases it seems to depend more on the direct mechanical and infectious complications of the strumitis. The most dreaded is death from asphyxia, occuring frequently when, under some influence, the goiter suddenly increases in size. Suppurating strumitis may have, however, some fortunate consequences, as it may entail the disappearance of the goiter. This occurred partially in their case, and in others mentioned by Petit, Lebert and Heidenreich. Thus, the prognosis depends mostly on the surgical treatment, but, if it is not resorted to, the patient should be closely watched so as to be ready to apply emergency treatment in case of sudden asphyxia.

Fetal Smallpox.—Puig y Roig here publishes a case of smallpox in a fetus, similar to Legros' case in which a woman, recently vaccinated, who had had sexual intercourse with a convalescent from smallpox, aborted five months later of a fetus with smallpox pustules. The woman had not presented any smallpox symptoms during her pregnancy. In Puig y Roig's case the woman had expelled a 5 months' ovum containing a semimummified fetus covered with smallpox pustules, although she was not visibly contaminated with the infection. She lived in one of the poorest parts of the city in which isolated cases of smallpox had been reported a few weeks before her abortion, but had never come in contact with any infected person. Puig y Roig theorizes that the mucous membrane of the respiratory tract had been infected through the air, and that the smallpox virus passed from Pfeiffer's protopustule into the patient's blood invading, through placental lesions, the fetal circulation. The woman's organism being fully immunized against infection, the smallpox virus attacked only the frail organism of the fetus, which was not immunized, and was formed of immunized female elements, and male elements in a state of receptivity. Thus,

the eruption appeared on the fetus' skin only. The woman developed intense fever occurring suddenly with syncope, corresponding probably to the period of invasion of the disease, or, perhaps, incited by the fetal suppuration producing strong toxinemia in the mother.

Journal de Radiologie, Paris

September, 1922, **6**, No. 9

Treatment of Painful Abdominal Syndromes. M. Ménard and S. Nemours-Auguste.—p. 397.
Roentgenology in University Teaching. G. Holzknecht.—p. 402.
Present Status of Deep Radiotherapy. Nadaud.—p. 405. Conc'n.
The Choice of an Ionometric Unit. I. Solomon.—p. 418.
New Fluorometer for Deep Radiotherapy. M. Huguet.—p. 419.
New Radiochromometric Process. M. de Laroquette.—p. 420.
Plastic Substance for Surface Radiotherapy. T. Nogier.—p. 423.
*Radiotherapy in Pulmonary Tuberculosis. Rechou.—p. 423.

Radiotherapy of Pulmonary Tuberculosis.—Rechou gives his personal technic and the results with Manoukhine's irradiation of the spleen, and states that it is as yet impossible to foretell what will be the outcome of this treatment in pulmonary tuberculosis, as experiments and studies are still incomplete. His conclusions, however, are that irradiation of the spleen seems to be a method susceptible of improving a restricted number of pulmonary tuberculous patients. The subjects that may benefit from the treatment are those who show, after irradiation, a strong increase of red corpuscles. In certain subjects the leukocytes increase and in others they decrease. The number of polynuclears seems very variable, but the lymphocytes always decrease. The study of the method deserves to be continued but the blood changes and the modification of the spleen should be more thoroughly investigated.

Médecine, Paris

October, 1922, **4**, No. 1

*Recent Progress of Surgery. P. Mathieu.—p. 5.
Treatment of Acute Appendicitis. P. Lecène.—p. 14.
*Treatment of Hare-Lip. L. Ombredanne.—p. 21.
Osteoma in Patellar Ligament. C. Dujarier.—p. 28.
*Congenital Scoliosis. A. Mouchet.—p. 32.
*Subnormal Pressure in Cerebral Fluid. R. Leriche.—p. 37.
Colon Bacilli Pyelonephritis. E. Michon.—p. 40.
*Gonorrheal Arthritis. H. Rouvillois.—p. 45.
*Treatment of Severe Injury of Limbs. G. Cotte.—p. 51.
Treatment of Coxalgia. E. Sorrel.—p. 57.
Sequelae of Nephrectomy for Tuberculosis. E. Papin.—p. 64.
Dental Cysts. F. Bonnet-Roy.—p. 70.

Recent Progress in Surgery.—Mathieu discusses in particular the publications during 1921 and 1922 on anesthesia, radiotherapy and vaccine therapy. He says that vaccine therapy has not gained any ground lately in surgical affections. Especially in treatment of osteomyelitis, many surgeons have lost their early enthusiasm. But the benefit, as an adjuvant, from antistaphylococcus vaccines in osteomyelitis and of polyvalent vaccines in suppurating adnexitis is observed so often that it deserves serious attention, although it is inconstant. He mentions among the recent surgical achievements the success of gastrectomy in treatment of perforated ulcer. Duval has compiled a long list of cases in which this was done. It is indicated only with recent perforation without much change in the peritoneum. He mentions further Latarjet's success in curing a tendency to ulceration or tabetic crises by resecting the gastric nerves, and thus reducing sensibility and secretion. He urges closer collaboration between physicians and surgeons in study of disease in the thorax, especially for thoracoplasty in pulmonary tuberculosis in which artificial pneumothorax is indicated but not practicable. Dujarier with arthrotomy for gonococcus arthritis, suturing without drainage, and Auvray with intra-articular serotherapy, have each demonstrated patients cured, with excellent functioning of the joint. Their success suggests a more favorable prognosis for these complications of gonorrhea in future.

Treatment of Harelip.—Ombredanne discusses the general principles to be followed, and the preferable age and sequence of interventions for treatment of congenital fissures in lips and gums.

Congenital Scoliosis.—Mouchet declares that malformation of a vertebra is a frequent source of scoliosis which does not develop until the age of 8 or 9 or 12 or 13. The back is flat with this type of scoliosis. At puberty the sacrum develops and slants, its base pivoting forward, and this strains the fifth lumbar vertebra. The slightest tendency to asymmetry here, vertical or transverse, throws the spine out of balance, and scoliosis results in the effort at mechanical compensation. It is thus a congenital scoliosis although it does not become manifest till puberty. This form of scoliosis is much graver than scoliosis of muscular origin, which may be amenable to treatment.

Disturbances from Hypotension in Cerebral Fluid.—Leriche's warning of the disturbance liable to follow excessive loss of cerebrospinal fluid or the inadequate production or an abnormally large subarachnoid space, was summarized in these columns, May 20, 1922, p. 1578. Too little cerebral fluid may cause frontal headache, nausea, vertigo, and even convulsions. Treatment is by subcutaneous injection of small amounts, up to 200 gm., of physiologic saline. Intravenous injection of 40 or 50 c.c. of distilled water acts even more promptly, and thus confirms the diagnosis. He suggests also possible benefit from pituitary treatment, ligation of the inferior longitudinal sinus, of the internal jugular vein, or periarterial sympathectomy of the carotid.

Gonococcus Arthritis.—Rouvillois remarks that the distinction between arthritis with a simple effusion or with pus and the plastic form has not been made with precision in the past. Treatment, however, and the attainable results vary with each type. His experience justifies arthrotomy when the synovialis is readily accessible, as in the knee. Before suturing, he injects into the cavity antigonococcus serum. He reserves puncture and local injection of the antiserum for the less accessible wrist and ankle. Early arthrotomy allows removal of the fibrinous deposits in the plastic form.

Modern Treatment of Wounds.—Cotte explains how the lessons learned in the war should be applied to crushing and other severe injuries of the limbs in civilian practice.

Paris Médical

Sept. 9, 1922, **12**, No. 36

Prognostic Import of Reaction to Epinephrin. S. Sterling.—p. 233.
*Experimental Congenital Tuberculosis. H. Malherbe and L. Fortineau. —p. 237.
*Meningitis of Otitic Origin. H. Aboulker.—p. 240.
*Indirect Center Therapy. A. Leprince.—p. 244.

Experimental Research on Inherited Tuberculosis.—Malherbe and Fortineau found evidences of heredodystrophia in an exceptionally large proportion of the offspring of tuberculous guinea-pigs, possibly because the animals were kept under observation for an unusually long period. A few of the young presented actual congenital tuberculous lesions, so that placental transmission of the infection must be accepted as possible, although rare.

Serous Meningitis of Otitic Origin.—Aboulker has been able to compile from the records only six cases of pseudocystic cerebral meningitis of the convexity, and here adds another to the list. He has previously published sixteen cases of recovery from meningitis of otitic origin; in thirteen the meningitis was aseptic. The symptoms from hypertension are alike in both the aseptic cases and those with suppuration. But they are much more pronounced, more numerous and more impressive in the purely serous cases than with an abscess. This difference in the intensity of the symptoms allows correct treatment, avoiding the mastoid and trephining at a distance from the ear, in the temporal region. The course of the case described explained it as a tuberculous otitis with secondary serous meningitis with turbid fluid. Marked improvement followed during the four months the young man was under observation. In another case of tuberculous otitis plus serous meningitis the fluid was clear, and the symptoms subsided after releasing a few drops of it. There was a fistula into the mastoid in this case.

Indirect Nerve Center Therapy.—Leprince has been treating eczema, furunculosis, asthma, neurasthenia, etc., by cauterization of a certain point in the nose or by treatment with Danysz' entero-antigens. He accepts that these measures act on the nerve centers involved, and hence he calls it center therapy. The aim is to elicit a curative reflex action. He has been applying these two methods in parallel series

of tests. The nasal cauterization acts more rapidly, but Danysz' method may succeed where the other has failed, and it always seemed to have a tonic effect. He gives the details of nearly twenty cases, many of them promptly and completely cured.

Presse Médicale, Paris

Oct. 18, 1922, **30**, No. 83

*Radiology of Pylorospasm. G. Barret and H. Chaufour.—p. 897.

Roentgenography of Stenosis and Spasm of the Pylorus.—The roentgen-ray findings in adults and in infants are compared and analyzed.

Revue de Chirurgie, Paris

1922, **60**, No. 5

*Biologic Condition from Surgical Standpoint. A. Chenut.—p. 287.
*Postdysenteric Osteitis. Charbonnel.—p. 345.

Relations Between the Biologic Condition and Postoperative Mishaps.—Chenut discusses how to estimate the patient's resisting powers as a whole in considering an operation which is not imperative. Unexpected postoperative mishaps might be warded off with closer study of the biologic condition, especially the functional capacity of the kidneys (elimination of sulphonephthalein and the Ambard index), the metabolism, and the mental and emotional condition. J. L. Faure defers operations when possible during periods of serious epidemics. Chenut adds that intercurrent infection is usually the most important factor in the course after an operation, but much light is thrown on it by the ratio between the total nitrogen and the nonprotein nitrogen. His formula for this latter is the quotient of the *azote titrable au formol* divided by the *azote titrable à l'hypobromite*. It is an index of the power of transforming ammonia into urea. Lanzenberg styles it also the coefficient of total acidosis, as it represents the ratio between (1) the nitrogen neutralizing the acids and (2) the neutralizing nitrogen plus the nitrogen that has already neutralized the acids. It is thus the index of the neutralization by the ammonia of the acids from organic disintegration. These two phenomena of such different orders are manifested by the same urologic signs, hence the formula: $\frac{\text{nitrogen by formaldehyd titration}}{\text{nitrogen by hypobromite titration}}$ answers for every purpose. In the normal, the quotient averages from 5 to 8. A figure above this reveals a toxic condition from incomplete transformation of the ammonia into urea or from accumulation in the body of acids resulting from disintegration of proteins, or both. Chenut analyzes the various cases in which postoperative mishaps were observed in Chavannaz' service, his conclusion being that nearly all could have been foretold from the responses to the biologic tests beforehand if they had been interpreted correctly and heeded.

Postdysenteric Abscess in Bone.—The previously healthy man of 45 had dysentery in 1917, and two months after apparent recovery a lesion developed in one tibia, but it apparently healed after an incision. It persisted in a latent form, and four years later a large abscess developed in the region. The colon bacillus alone could be cultivated from it.

Revue Médicale de la Suisse Romande, Geneva

September, 1922, **42**, No. 9

*Epidemic of Scarlet Fever. H. Cristiani and R. Gautier.—p. 545.
*Scarlet Fever in Adults. C. Saloz and P. Schiff.—p. 560.
Pneumonic Tuberculous Lesions. Jaquerod.—p. 576.
*Present Status of Gout. N. Betchov.—p.582.
*Acute Fatal Osteomyelitis. P. Gautier.—p. 589.
Cirrhosis of Liver in Streptococcus Sepsis. G. Turrettini and E. Frommel.—p. 592.
Subcutaneous Myiasis in Little Girl. G. Gander.—p. 597.

Atypical Scarlet Fever.—The epidemic of scarlet fever at Geneva in December, 1921, has already been mentioned in THE JOURNAL. From the average of 27 cases in November, the number ran up to 794 in December and 255 in January, and then dropped back to the usual low figure. Only 41 per cent. of the cases were in schoolchildren, adults forming a large proportion of the explosive, brief and benign epidemic. Saloz and Schiff comment on the frequency of hemorrhagic manifestations, epistaxis, or conjunctival hemorrhage (7 cases) or hemoptysis (2 cases). Tests for urobilin were positive in 65 per cent. during the eruption, in 35 per cent. at the fifteenth, and in 12 per cent. after the fortieth day. This evidence of insufficiency of the liver in such a mild form of scarlet fever was confirmed in 89 per cent. of 113 cases by the sodium salicylate test. This is based on the retention by the normal liver of a small dose of sodium salicylate. Capillaroscopy further confirmed the tendency to intense congestion during the disease; some writers even say the special feature of scarlet fever is a "generalized capillaritis." This is the explanation of the various signs of scarlet fever, the spontaneous petechiae in the bend of the elbow or below, after compression of the elbow. The extinction phenomenon never failed to be instructive, and the fixation of complement tests revealed the scarlatinal nature of certain sore throats, without eruption, during the epidemic. They found it very difficult to enforce for adults the full period of quarantine after the patients felt that they had recovered. They had to keep 200 patients in this way to the end of the six weeks, and there was danger of "barbed wire psychosis," but only four developed contractures and convulsions from this cause. The most serious complications were in two cases in which the return to business could not be prevented.

Present Status of Gout.—Betchov compares recent publications on gout, saying that Guelpa, "the *enfant terrible* of the diatheses," has upset all preconceived ideas by his assertion that chronic gout is usually only an overtreated gout. He insists that the attack of gout is the salutary house-cleaning, and to combat it is like doing away with the police to insure public peace. Others recently have sustained his view that the attack is the mobilization of the urates, not precipitation of them. Colchicum is useful, given a week after the beginning of the attack. The views are conflicting as to the diet, but all agree on fruit, sugar and fat as being harmless, with water as the beverage and not in excess, and Guelpa insists "not alkaline." As to drugs, aside from sodium salicylate, their use may sometimes be advisable for the sole reason that the physician may be confident that the patient will take some drug, whatever the physician's directions may be, and that it is better to keep this under control than to ignore it.

Osteomyelitis Simulating Acute Articular Rheumatism.—The retrospective diagnosis was osteomyelitis with multiple foci and septicemia in the girl of 12, fatal the seventh day. The foci had developed close to joints, and the diagnosis of acute articular rheumatism seemed certain, especially as friction sounds were evident in pleura and pericardium.

Schweizerische medizinische Wochenschrift, Basel

Sept. 28, 1922, **52**, No. 39

Therapeutic Intratracheal Injections. H. Mantchik.—p. 949.
"Anginosis" and Tonsillectomy. J. Fein.—p. 953.
*Diagnosis of Actite Tuberculosis. H. Trenkel.—p. 955.
Prognosis of Dislocation of Shoulder. H. Gubler.—p. 960. Cont'd.

Diagnosis of Active Tuberculosis.—Trenkel reports tests of Fornet's method for serodiagnosis by the agglutination of tubercle bacilli freed from their waxy cover by a special mechanical and chemical process. It seems to be an improvement over other methods of serodiagnosis in tuberculosis but sometimes, when the disease is advanced and progressing, the agglutination titer was as low as in the healthy. On the other hand, the titer sometimes kept high long after clinical healing of the disease. The highest agglutination figures were found in the beginning and very active cases, without a decidedly unfavorable prognosis.

Oct. 5, 1922, **52**, No. 40

Relations Between Chemical Composition and Action of Drugs. A. Oswald.—p. 973.
Research with Test for Urobilinogen. E. Herzfeld.—p. 976.
Specific Alkaloid from Ergot. E. Rothlin.—p. 978.
*Spring Conjunctivitis and Hay Fever. J. Strebel.—p. 981.
The Silver Salts and Argyria. H. Koller-Aeby.—p. 983.
*Prognosis with Dislocation of Shoulder. H. Gubler.—p. 985. Conc'n.

Vernal Conjunctivitis and Hay-Fever.—Strebel comments on the common mistakes in differentiating what he calls spring catarrh. The eosinophilia in the secretion is instructive, also the long glassy threads in the conjunctival folds,

formed from the viscous secretion. He discusses treatment, and theorizes on means of prophylaxis of hay-fever. Honey is a traditional folklore remedy for hay-fever, and he suggests that this may have a grain of truth for its basis, as honey contains pollen from various blossoms. It might be possible to desensitize in time by drinking decoctions of the dried pollens which have been found to be responsible for the hay-fever. Or the grass blossoms could be eaten fresh, or cooked in an omelet.

Dislocation of the Shoulder.—Gubler discusses this question from the workman's compensation standpoint, tabulating a large number of cases from the insurance records. The older the patient, the longer the course of treatment required, and the poorer the outcome, but complete recovery followed in 94.1 per cent., with an average of thirty-eight days of treatment. Luxation with paralysis gave the gravest prognosis, with 50 per cent. disability and requiring nearly six months of treatment. Fracture of the greater tuberosity entailed 17 per cent. disability, but 70 per cent. of the complications healed without disability. The report analyzes 252 cases of dislocation of the shoulder.

Annali Italiani di Chirurgia, Naples

July 20, 1922, **1**, No. 4-5

*Ligneous Perinephritis. F. Greco.—p. 281.
Resection of the Colon. B. Schiassi.—p. 291.
Radiography of the Hip Joint. C. M. Zucco.—p. 320.
*Spontaneous Cures of Cancer. D. B. Roncali.—p. 332. Cont'n.
*Autoplasty with Preformed Skin Canals. F. Nassetti and D. Pizzetti. —p. 369.
*So-Called Cystic Disease of the Testicle. R. Grignani.—p. 382.
The Parlavecchio Method in Cancer of the Breast. G. Aperlo.—p. 404.
Etiology and Pathogenesis of Non-Traumatic Diaphragmatic Hernia. E. Aievoli.—p. 407.

Woody Perinephritis.—The lumbar fascia formed part of the hard woody mass extending down to the iliac crest. The knife squeaked as it cut down to the kidney, which seemed to be normal. A few small foci were seen here and there with a few drops of pus. The incision was left open and the inflammatory mass softened and rapidly retrogressed. Healing was complete the fortieth day.

Spontaneous Cure of Cancers.—In this second article on this subject, Roncali analyzes twenty cases which have been published as the natural or spontaneous cure of a chorio-epithelioma. His conclusion is that none of the cases will stand criticism. Nineteen of the growths in question were not chorio-epitheliomas, and the twentieth is dubious. The others were merely infiltration of the walls of the uterus with molar or chorionic villi or heteromorphous chorion. This infiltration may predispose to chorio-epithelioma but it is not chorio-epithelioma, and this disposes of the tradition of a spontaneous cure. The only possibility of a cure is when it is recognized and cut out in time to avert metastasis.

Autoplastic Operations with Preformed Skin Tubes.—Nassetti makes the tube out of skin at a point where conditions are most favorable for circulation, etc. When the canal has thus been formed, and has healed to make a perfect tube, it is twisted around or transplanted in the place desired. He describes extensive experiments on animals. In one group the whole skin-fascia flap on which the ready-made tube lay was twisted around into its new bed. One end of the tube faces the pedicle, the other end the tip of the flap. The sides of the thorax and the abdomen of rabbits were particularly favorable for this form of autoplastics; the skin stretched easily to cover the gap left. In another group of animals the tube was made entirely loose, except for its pedicle at one end, and the tube could be introduced under the skin or passed through a muscle. These preformed complete canals healed rapidly in their new position, except in four animals in which the outer end of the tube became necrotic; these four tubes were exceptionally long. In twisting the flaps around into place the direction of the vessels must be heeded to maintain good circulation. The advantages are obvious of having the tube healed and ready for the autoplastic operation. This method seems to be especially promising in operations for hypospadias, and to insure muscular control of prostheses after amputations, and in reconstruction of the urethra.

Cystic Disease of the Testicle.—In Grignani's case the tumor had slowly developed in the man of 47 in the last few months. It seemed to be a mixed tumor of embryoid type, benign, but liable to become malignant at any time.

Pediatria, Naples

Oct. 15, 1922, **30**, No. 20

*Infant Advice Center. A. F. Canelli.—p. 937.
*Attempt to Immunize Infants. R. Pastore.—p. 950.
*Diagnostic Seroreaction in Leishmaniasis. G. Milio.—p. 957.
Granulations in Lymphogranulomatosis. G. Goglia.—p. 960.

Nutritional Diseases at Infant Advice Center.—Canelli states that 45.5 per cent. of mother-nursed children brought to the infant welfare station at Naples had diarrhea: 76 per cent. of the wetnurse infants, and 74 per cent. of the artificially fed. Only 1.5 per cent. died of the first thousand infants brought to the station. The weak point is the ignorance of the mothers.

Protein Therapy for Infants.—Pastore injected six healthy infants from 3 to 8 months old with rabbit serum, and records the differential blood count at brief intervals thereafter, and the response to hemolytic and agglutination tests. The aim was to study the possibility of stimulating immunity at this age by a kind of protein therapy. An antibody developed but there was no production of precipitin.

Precipitation Test in Internal Leishmaniasis.—Milio confirmed in fourteen cases the constancy and reliability of Brahmachari's diagnostic test of kala azar. This is the turbidity observed when to the blood serum is added two or three times its volume of distilled water, poured down the wall of the test tube. The test was constantly negative in the fourteen controls with other diseases.

Policlinico, Rome

Sept. 4, 1922, **29**, No. 36

Indications for Artificial Pneumothorax. Zuccola.—p. 1161.
Typhoid in the Pregnant. A. Ferri.—p. 1163.
Case of Conjugal General Paresis. L. Cacioppo.—p. 1167.
Autolymphotherapy in Tuberculosis. B. Zaniboni.—p. 1169.
Voluntary Diplopia. A. Guerricchio.—p. 1170.

Sept. 11, 1922, **29**, No. 37

*Experimental Encephalitis and Keratitis. G. Mariani.—p. 1193.
*Torsion of Ovarian Cyst. G. Onano.—p. 1195.
Partial Symphysiectomy. R. Bader.—p. 1196.
Pathogenesis of Pallor with Arteriosclerosis. Grossi.—p. 1198.
Test for Urea. P. Clara.—p. 1198.
Prophylaxis of Influenza. D. Falcioni.—p. 1199.

Experimental Encephalitis and Keratitis.—Mariani inoculated rabbits with secretions from cases of herpes zoster and febrile herpes. The inoculations in the rabbit cornea induced keratitis in nearly all the animals and in 20 per cent. a hemorrhagic encephalitis. The keratitis did not develop when the secretion inoculated was from cases of herpes zoster.

Torsion of Ovarian Cyst.—The pedicle of the cyst had grown to the pregnant uterus and, when torsion occurred, the intense pains and other symptoms suggested a ruptured tubal pregnancy.

Riforma Medica, Naples

Sept. 4, 1922, **38**, No. 36

Encephalitis with Erysipelas. G. Tarozzi.—p. 841.
*Tubercle Bacilli in Subcutaneous Tissue. A. I. Saggioro.—p. 842.
*The Predisposed to Tuberculosis. A. Della Cioppa.—p. 844.
*Serotherapy of Cancer. G. Gianturco.—p. 845.
Surgery of the Pericardium. E. Aievoli.—p. 848.

Destruction of Tubercle Bacilli in Subcutaneous Tissue.—Saggioro relates that not only killed tubercle bacilli but living virulent bacilli, injected subcutaneously (0.25 c.c.) in guinea-pigs, all became disintegrated and destroyed. The subcutaneous tissue has the property of destroying tubercle bacilli in this way. The tissues respond with the production of antibodies. This is the basis of Maragliano's vaccine therapy. Examination every ten days of tissues from the animals showed the gradual disappearance of the bacilli. After the fortieth day, only traces of the bacilli that had been living when injected could be detected.

Ear, Nose and Throat Lesions in the Predisposed to Tuberculosis.—Della Cioppa found among the 100 children at an Italian preventorium sanatorium that 68 per cent. had catarrhal pharyngitis; 54 per cent. enlarged tonsils; 51 per cent. adenoid vegetations, and 62 per cent. incipient disease of the middle ear. The throat was normal only in 9 per cent. The corresponding figures for the average schoolchildren at Naples were, respectively, 36, 20, 18 and 38, with normal throats in 48 per cent.

Serotherapy of Cancer.—Gianturco injected normal human blood serum directly into the cancerous growth, or intravenously (up to 100 or 200 c.c.) or he transfused normal citrated human blood. He urges others to experiment in this line, with control injections, aiming to induce passive immunity in time.

Archivos Latino-Amer. de Pediatría, Buenos Aires

Sept. 11, 1922, **38.** No. 37

*Bacteriology of Acute Disease of the Bladder. N. Pane and G. Cirillo.—p. 865.
Serodiagnosis of Echinococcus Disease. P. del Torto.—p. 867.
The Blood in the Elderly. A. Terzani.—p. 871.
Traumatic Arteriovenous Aneurysm in Arm. L. Durante.—p. 873.
Roentgen Ray Treatment in Dermatology. C. Guarini.—p. 876.

Bacteriology of Acute Disease of the Bladder.—In the ten cases reported, the bacteria had evidently reached the bladder by way of the urethra. The infection was mixed in all but 30 per cent.

Archivos Latino-Amer. de Pediatría, Buenos Aires

August, 1922, **16.** No. 8

Chronic Nephritis in Children. V. Hutinel.—p. 417. Conc'n.
Chorea Cured by Measles. L. Ayerza.—p. 441.
Skimmed Milk in Infant Feeding. J. A. Bauzá.—p. 445. Conc'n.
*Pseudotumor in Brain. L. Volenté.—p. 460.
*Meningeal Form of Acute Poliomyelitis. M. Acuña and A. Casaubón.—p. 464.
*Chronic Encephalitis. A. A. Ugón.—p. 472.
*Meningeal Hemorrhage in Boy. J. L. Vera.—p. 476.

Pseudotumor in Brain.—The child presented symptoms suggesting a tumor in the brain, including bilateral optic neuritis. After intercurrent typhoid the symptoms all subsided, but they returned two years later. The clinical picture then was extremely grave, with atrophy of the optic nerve and cachexia, but the symptoms—except those from the irreparable lesions in the optic nerve—nearly all subsided under decompressive trephining, plus ligation and resection of the longitudinal sinus.

Meningeal Form of Epidemic Poliomyelitis.—Two cases are described. In one the disease was of the purely meningeal type, with no paralysis or focal symptoms at any moment. The differential diagnosis in this type can never be positive without necropsy, but the complete recovery is strong presumptive evidence. Lymphocytosis and abnormally high albumin content in the lumbar puncture fluid suggest tuberculous meningitis, but are never quite so pronounced as in the latter. The details are given also of a case in which the meningeal symptoms were accompanied by paralysis.

Chronic Encephalitis.—The clinical pictures suggested a brain tumor in the boy and epilepsy in his sister, aged 3. The boy died from tuberculosis after having presented symptoms ascribed to a brain tumor, headache, vomiting, bilateral optic neuritis and, finally, idiocy. Necropsy failed to reveal the anticipated tumor in the brain. The girl developed an epileptiform condition at the age of 9. The child died after four years in which there had been waves of convulsions and, finally, idiocy and blindness. The familial nature of the disease was manifest in the blindness and idiocy in both and the four year course, and the distention of the ventricles and abnormally large amount of cerebrospinal fluid. There was a history of abuse of alcohol in the parents, but nothing to suggest syphilis was discovered.

Meningeal Hemorrhage in Child with Inherited Syphilis.—The apparently healthy boy of 14 suddenly fell, unconscious, and the spinal fluid contained blood afterward, with symptoms of meningitis. There had been no trauma or hemorrhagic tendency, and Vera accepts some syphilitic lesion in the walls of the meningeal arteries as the explanation for the clinical picture. It had retrogressed completely by the third month. Both parents were alcoholic in addition to the syphilitic taint they had transmitted to the child.

Semana Médica, Buenos Aires

Aug. 24, 1922, **2.** No. 34

*Obstetric Compression of Aorta. J. B. González.—p. 381.
*Diabetes During Pregnancy. M. L. Pérez.—p. 393.
Obstruction of Nose in Schoolchildren. J. Weiss.—p. 398.
*The Medical Thesis. O. L. Bottaro.—p. 404.
Case of Traumatic Neurosis. A. A. Masciotra.—p. 409.
Carbuncle in a Diabetic. C. A. Vago.—p. 412.

Improved Technic for Obstetric Compression of Aorta.—González declares that the method of compressing the aorta with the ulnar edge of the hand arrests the circulation through it immediately and completely, while it is harmless for the mother and the action is durable. His illustrations of the anatomy demonstrate that the point for effectual compression is at the fourth lumbar vertebra, two fingerbreadths above the umbilicus. This arrests practically all hemorrhage from the uterus. The compression is applied with the ulnar side of the hand, slightly flexed, and held stiff, perpendicular to the abdomen, crossing the median line just above the fundus of the uterus. The edge of the hand is worked down into the abdominal wall as deep as possible, the palm facing the pubis, without applying force. The pressure is reenforced with the first three fingers of the other hand. The beat of the aorta can then be felt without any force being exerted by the hand applying the direct pressure. Pushing in a little farther, the thrill of an incompletely closed vessel is perceived. Pushing a little more, this thrill stops, and the femoral pulse stops at the same time, and the uterine hemorrhage likewise. With this technic, one person can take the place of another in case of fatigue, without interrupting the compression. The slight curve of the hand allows it to fit over the vertebrae. The control of the femoral pulse gives oversight of the condition. If the pulse keeps at the same rate, we can be confident that the compression is effectual. Seven illustrations show the exact technic.

Diabetes in Pregnancy.—The typical diabetes mellitus developed in the previously healthy but obese young woman late in her second pregnancy. The unusually large child was born cyanotic and died in thirty minutes, but all symptoms of the diabetes subsided during the puerperium. The hemoclastic crisis could be elicited during the diabetes by ingestion of the test 200 gm. of milk, and even by a small dose of glucose (30 gm. dissolved in a glass of water).

The Medical Thesis.—Bottaro criticizes the present regulations and offers suggestions to improve conditions.

Deutsche medizinische Wochenschrift, Berlin

Sept. 15, 1922, **48.** No. 37

A Survey of Medicine as Presented at the Meetings of German Scientists, 1822-1920. K. Sudhoff.—p. 1229.
Causes and Preconditions; Natural Laws in Relation to Rules. W. Roux.—p. 1232.
The Causal and the Teleologic Point of View in Medicine. T. Ziehen.—p. 1233.
The Conscious and the Subconscious Mind. H. Driesch.—p. 1234.
Positivism and Its Conception of the World. B. v. Kern.—p. 1235.
Theories on Color Vision Since Newton. W. Ostwald.—p. 1237.
Vision in Insects and Crabs. C. v. Hess.—p. 1238.
The Science of Heredity; Its History and Present Significance. O. Hertwig.—p. 1239.
The Synthetic Theory of the Animal Organism. M. Heidenhain.—p. 1240.
Applications of the Notion of Inflammation to the Nervous System. F. Marchand.—p. 1242.
Prevention of Inflammation in Subcutaneous Injections of Remedies That Commonly Have an Inflammatory Effect. H. H. Meyer and P. Freund.—p. 1243.
Pseudocrystalline Gallstones. B. Naunyn.—p. 1244.
Pain and Its Treatment. A. Hoche.—p. 1246.
Management of Acute Bronchitis. Goldscheider.—p. 1248.
Traumatic Pseudoabscesses of the Brain. A. Eiselsberg.—p. 1249.
Recollections of an Ophthalmologist of Long Practice. J. Hirschberg.—p. 1250.

Münchener medizinische Wochenschrift, Munich

Sept. 15, 1922, **69.** No. 37

Rudolf Virchow, Felix Marchand and Cellular Pathology. W. Hueck.—p. 1325.
The Pepsin-Pregl Solution in the Treatment of Inoperable, Malignant Growths. E. Payr.—p. 1330.
Treatment of Rupture of Extensor Tendon of Third Phalanx. Sonntag.—p. 1333.
Quick Cure for Scabies. O. Kiess.—p. 1335.
*Outbreak of Trichinosis in Erlangen. B. Fuchs.—p. 1336.

Intraperitoneal Infusion. K. Renz.—p. 1338.
The Effect of Caffein on Performance of Athletes. H. Herxheimer.—p. 1339.
*Phototherapy in Eye Diseases. F. Schanz.—p. 1341.
Chronic Hereditary Hemolytic Icterus with Fatal Issue. Nonnenbruch.—p. 1343.
Bilateral Division of the Phrenic Nerve in Singultus. J. Oehler.—p. 1344.
Prolapse of Bladder Through Urethra. Klauser.—p. 1344.
Cutaneous Hemorrhages After Injections of Arsphenamin. H. Feit.—p. 1345.
Value of Sauerbruch Cineplastic Procedure. C. ten Horn.—p. 1346.
Gregor Mendel; a Biographic Sketch. F. Lenz.—p. 1349.
Treatment of Eclampsia. E. Bumm.—p. 1351.

Outbreak of Trichinosis in Erlangen.—Fuchs recounts the course of an outbreak of trichinosis in Erlangen, which was caused by the eating of sausage infected with trichinae. About 100 persons became infected. The symptoms were: edema of the eyelids, pains in the muscles, high fever in some cases, strongly positive diazoreaction, and pronounced eosinophilia. Leukocytosis, observed in former epidemics, was not noted; nor was disappearance of the patellar reflex one of the manifestations. Injection of blood serum of trichinous patients produced in guinea-pigs an increase of eosinophil cells, whereas the injection of blood serum of healthy persons caused a decrease. No deaths resulted from the outbreak.

Phototherapy in Eye Diseases.—Schanz has experimented for the past ten years with phototherapy in eye disease. He has found this mode of treatment successful, and gives an account of his methods and results.

Wiener klinische Wochenschrift, Vienna

Aug. 17, 1922, **35,** No. 33

Practical Roentgen-Ray Dosage in Internal Medicine. R. Lenk.—p. 695.
*Galvanopalpation and Roentgen-Ray Diagnosis. M. Kahane.—p. 698.
Conc'n in No. 34.
Practical Experiences with the Intravenous Use of Glucose. H. Planner.—p. 701.
*Influencing of Scar Formation by Exclusion of Light. J. v. Ries.—p. 702.

Aug. 24, 1922, **35,** No. 34

Roentgenographic Diagnosis of Intracranial Affections by Means of the Dandy Procedure. A. Schüller.—p. 709.
Heart and Vessel Changes in Experimental Diphtheria in the Guinea-Pig. T. Iwabuchi.—p. 711.
Scientific Justification of the Classification of Pulmonary Tuberculosis as Open and Closed Types. A. Winkler.—p. 713.
Adhesion of the Labia Minora Occurring Post Partum. O. Knopf.—p. 715.

Galvanopalpation and Roentgen-Ray Diagnosis.—Kahane states that his investigations have shown that the hypersensitiveness reaction of the sensory and vasomotor nerves of the skin to the galvanic current is a reflection from foci in the various organs. These foci are usually affections of an irritative nature, which are characterized by pains, spasms, active hyperemia, inflammation, ulcers or scar formation at the site of an old inflammation. The site of the skin reaction was found to correspond very closely to the site of the underlying disease focus, constituting a projection, as it were, on the surface of the skin. For instance, if there is an irritative affection of the gallbladder (cholecystitis), the spot on the skin overlying the gallbladder shows the typical hypersensitiveness of the sensory and vasomotor nerves of the skin to the galvanic current in the form of sensitiveness to pain and redness of the skin, which seemingly are confined to the affected region. The technic of galvanopalpation is simple and consists in the repeated application for very short intervals of a current that is weaker than the currents that cause a primary reaction of the sensory and vasomotor nerves of the skin in normal conditions.

The Effect of Light Filters on Scar Formation.—Ries observed that smallpox vaccination scars from six to ten months old were usually much larger and redder in women than in men. At first he thought the difference was due to the more tender skin in women, but later he concluded that the chief reason lay in the heavier clothing worn by men, which the rays of light penetrate less easily. For the past year he has applied a bandage to filter the light over the vaccination scars in a large series of cases. On comparing the scars after several months, he was surprised to note that the scars of the controls were large and red, while those that had been protected by the filter bandages were scarcely visible and in spite of previous large sores were small, soft and white. Ries holds that the vaccinated portions of the skin become extremely sensitive to light, and react strongly to every ray that constitutes a chemical irritant. The use of filters eliminates the irritating blue, violet and ultraviolet rays. From his observations he is convinced that all scar formation can be favorably influenced by protection against the light.

Zentralblatt für innere Medizin, Leipzig

July 8, 1922, **43,** No. 27

Determination of Blood Indican by the Jolles-Haas Method. F. Eigenberger.—p. 445.

Hospitalstidende, Copenhagen

Sept. 13, 1922, **65,** No. 37

*Gastric Ulcer with Indentation. K. Secher.—p. 597.
*Premature Separation of the Placenta. P. Kühnel.—p. 604.

Gastric Ulcer of Greater Curvature with Indentation.—Secher remarks that there are only twenty-three cases on record of an actual diverticulum in the stomach. In a case described, an ulcer in the greater curvature was accompanied with a pocket which suggested a diverticulum. This protruding part of the stomach wall was not adherent to other organs, and its size varied at different times and in different positions. The wall of the pocket must have retained its contracting power. The cases on record of a "functional diverticulum" were probably of this nature, a gastric ulcer with a niche.

Premature Separation of the Placenta.—The retrospective diagnosis was that an accessory placenta was responsible for the hemorrhage. The maternal vessel feeding it had ruptured, and the blood collected inside the placenta at first, in a preformed cavity and then back of the placenta. He has found these preformed cavities even in normal placentas.

Sept. 20, 1922, **65,** No. 38

*Clinical Study of Myocarditis. O. V. C. E. Petersen.—p. 613.
*Treatment of Disease of the Hair. C. With.—p. 622.

Blocking of Superior Branch of His' Bundle.—Petersen adds five new cases to the four he has previously published of bundle branch block. Analysis of his total nine cases in five years and necropsy in several has confirmed that it is a symptom of focal myocarditis, usually far advanced. The electrocardiograph reveals the only sure sign of it, and when syphilis is a factor, improvement may follow specific treatment; otherwise treatment can be only symptomatic. As it is a manifestation of myocarditis rather than of the conducting apparatus, digitalis is not contraindicated. He has given digitalis with good effects in these cases and no injurious consequences. All except two of his patients were in fair condition when first seen, all with good earning capacity. The heart disease was of several years' standing in some; in only one was the course as short as one year. He has never encountered but one instance of block of the lower branch of the His-Tawara bundle.

Treatment of Hair Disease.—With reviews what has been published on the subject of treatment of hair disease with extracts of horny substance. He then reports his own experience with 100 patients taking internally a hydrolysate of keratin. In 23 of 37 patients with alopecia areata, no effect was apparent as also in 6 of 9 cases of seborrheic dropping of the hair and in 5 of 9 with disease of the nails. The other patients in these and other groups seemed to benefit by the treatment, and the results, he says, justify further trials on man and animals. As might have been expected, some of the men complained of the annoyingly rapid growth of the beard and some of the women, of the growth of hair outside of the normally hairy areas. If further research confirms that the amino acids of keratin have an influence on the growth of hair and nails, the assumption seems plausible that certain skin diseases, such as psoriasis, might be due to an excess of horny substance in the diet, or at least might be influenced by excluding it from the diet. The work issues from the Finsen Light Institute at Copenhagen, and concludes with an appeal for closer cooperation between dermatology and pathologic physiology.